

# RADview-TDM

Element Management System for TDM Applications

FCD-IP

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# Chapter 1

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## Introduction

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### 1.1 Overview

This chapter describes the RADview management application for FCD-IP, and includes the following sections:

- Introducing RADview FCD-IP
- The FCD-IP Workplace.

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### 1.2 Introducing RADview FCD-IP

RADview FCD-IP enables you to monitor and manage FCD-IP. FCD-IP is an E1/T1 or E1/T1 over SHDSL, fractional integrated access device (IAD), which enables service providers to bundle data, voice and IP access services over a single E1 or T1 access line. Additionally, FCD-IP can be used for management applications in cellular or SDH environments. An integrated router supports IP/IPX routing and transparent bridging. The FCD-IP supports an optional internal 4-port Ethernet/Fast Ethernet switch, which can be installed in place of the LAN ports.

### 1.3 The FCD-IP Workplace

The RADview FCD-IP main window displays FCD-IP front and back panels, including all LEDs and interfaces. You can select most of the displayed interfaces in each section, or select the entire device for system configuration. A blue border marks the selected item.

**Note** To select the device itself, click on any area outside of the ports.

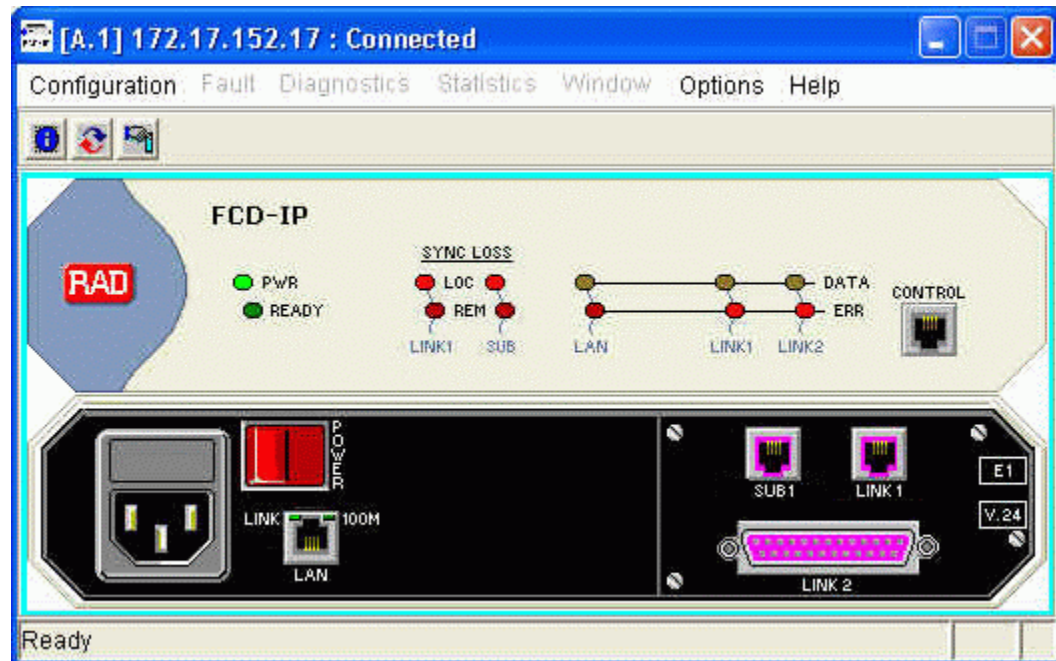


Figure 1-1. FCD-IP Main Window

When an interface is selected, two views are available:

- Edit View (Edit mode) is used for configuring the interface. When configuring the interface, the configuration is stored in the management station until you update the device. When you update the device, the configuration is saved on the device itself.
- Agent View (Agent mode) displays the current state of the interface.

The current mode is indicated by "E.#" or "A.#" at the top-left of the dialog box.

The menus and the available menu options vary, depending on the item selected in the main window (the device or one of its ports), and the current mode (Edit or Agent). Certain actions can only be performed in one of the modes. For example, the link mode can be configured only in the Edit mode and switching traffic between links can only be performed in Agent mode.

## 1.4 Edit and Agent Views

**Note** Certain TDM ports can be displayed in both Edit and Agent Views. Configuration is performed in the Edit mode. In Agent View, the parameters are Read-Only.

➤ **To switch between Edit and Agent views:**

1. Select the appropriate Link.
2. Switch the view by doing one of the following:

- Click the Edit/Agent View button on the toolbar 

or

- From the **Window** menu, select **Edit View/Agent View** to switch to Edit/Agent View.

3. When entering Edit View, you must enter the password.

Type the password in the field provided and click **<Set>**.



Figure 1-2. Password Dialog

## 1.5 LEDs

Table 1-1 describes the device LEDs.

Table 1-1. FCD-IP LEDs

Object	Description	Function
PWR	Green LED	ON when the device is powered on.
READY	Green LED	ON when the packets can be transferred.
LAN1 DATA LAN2 DATA	Yellow LED	ON when a packet is received or transmitted on the LAN side.
LAN1 ERR LAN2 ERR	Red LED	ON when a LAN interface indicates an error.
LINK 1 DATA LINK 2 DATA	Yellow LED	Turns ON briefly when a packet is received or transmitted on the LINK side.  Blinks constantly to show ISDN link integrity.

Table 1-1. FCD-IP LEDs (Cont.)

Object	Description	Function
LINK1 ERR LINK2 ERR	Red LED	<p>OFF when there is a physical connection and no LINK interface error.</p> <p>Turns ON briefly when the LINK interface indicates an error.</p> <p>Continuously ON when there is no physical connection.</p>
LAN 1 LAN 2 (Back Panel, UTP only)	Green LED	ON when synchronized with the network.
FX0 & FXS: VOICE 1 LOCAL VOICE 2 LOCAL VOICE 3 LOCAL VOICE 4 LOCAL	Green LED	On when the device is OFF hook.
FX0 & FXS: VOICE 1 REMOTE VOICE 2 REMOTE VOICE 3 REMOTE VOICE 4 REMOTE	Green LED	On when the remote side is calling.
E&M VOICE 1M LOCAL VOICE 2M LOCAL VOICE 3M LOCAL VOICE 4M LOCAL	Yellow LED	Mouth
E&M VOICE 1M REMOTE VOICE 2M REMOTE VOICE 3M REMOTE VOICE 4M REMOTE	Green LED	Ear
Fast ETH - LINK (1 UTP LAN)	Top Green LED	ON when synchronized with the network.
Fast ETH - 100M (1 UTP LAN)	Bottom Green LED	ON when synchronized with the network.
Fast ETH - LINK (4 UTP LANS)	Left Green LED	ON when synchronized with the network.
Fast ETH - 100M (4 UTP LANS)	Right Green LED	ON when synchronized with the network.
ALARM LINK1 RED SUB RED	Red LED	ON when T1 link is in Red alarm.
ALARM LINK1 YEL SUB YEL	Yellow LED	ON when T1 link is in YELLOW alarm.

*Table 1-1. FCD-IP LEDs (Cont.)*

Object	Description	Function
SYNCH LOSS LINK1 LOC SUB1/LINK2 LOC SUB2 LOC SUB3 LOC	Red LED	ON when E1 link is in local sync loss alarm.
SYNCH LOSS LINK1 REM SUB1/LINK2 REM SUB2 REM SUB3 REM	Red LED	ON when E1 link is in remote sync loss alarm



# Chapter 2

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## System Management

This chapter discusses how to monitor and configure the FCD-IP system.

Managing the FCD-IP system includes the following tasks:

- Selecting the System Level
- Viewing and Modifying FCD-IP System Configuration
- Setting Bridging Parameters
- Routing the IP
- Viewing the Connection Status
- Configuring the Dynamic Host Configuration Protocol (DHCP)
- Resetting the Device
- Polling the Agent
- Configuring SNMP
- Switching Between Edit and Agent View.

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### 2.1 Selecting the System Level

► **To select the system level:**

- Click on the outside frame of the device window.

A blue border outlines the entire device.

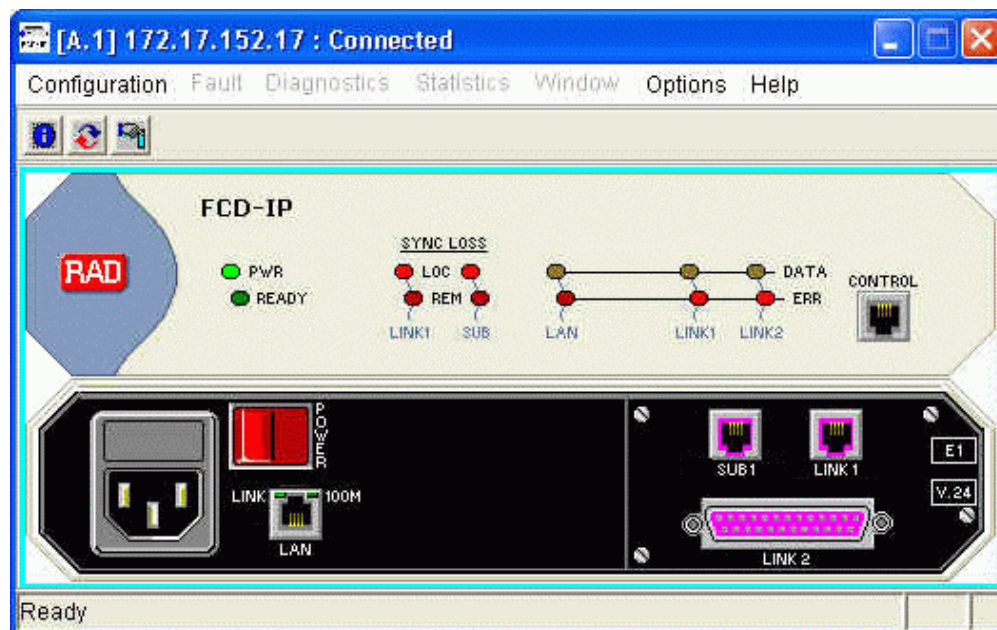


Figure 2-1. FCD-IP Main Window

## 2.2 Viewing and Modifying System Configuration

RADview enables you to view and modify the configuration of the FCD-IP.

► **To view or modify FCD-IP system information:**

1. Select **Configuration > System Info...**

or

click the shortcut key on the toolbar .

The System Information dialog box appears (See figure below).

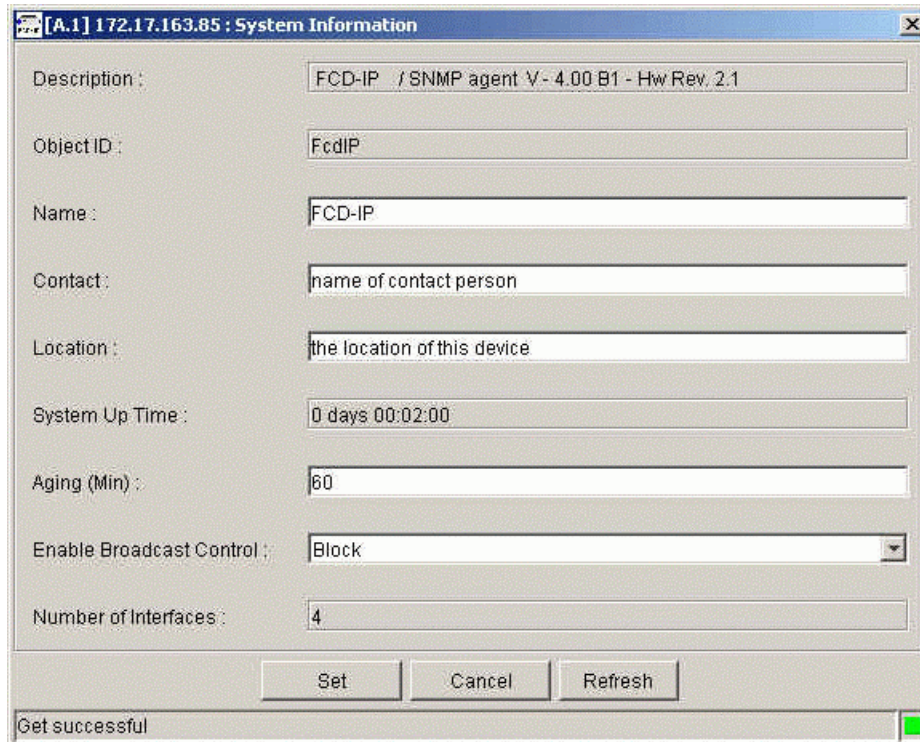


Figure 2-2. System Information

2. Enter the required settings. You can change the following fields: **Name**, **Contact**, **Location**, **Aging** (minutes allowed for station to be inactive without being removed from the network) and **Enable Broadcast Control**.
3. Click **<Set>** to implement the changes.

Table 2-1. System Information Parameters

Parameter	Possible Values / Remarks
Description	Description of hardware and software.
Object ID	Device type.
Name	Meaningful name assigned to this device.
Contact	Name of contact person responsible for device.
Location	Location of this device.



Table 2-1. System Information Parameters (Cont.)

Parameter	Possible Values / Remarks
System Up Time	Length of time since last power-up of device.
Aging (Min)	IP aging time for the station.
Enable Broadcast Control	Enables blocking or forwarding broadcast frames.  Block: blocks broadcast frames.  Forward: forwards broadcast frames.  Block Link Propagation: blocks broadcast frames to the links, transmitting to the LAN.
Number of Interfaces	Number of interfaces this device contains.

## 2.3 Setting Bridging Parameters

RADview enables you to add and remove addresses from the static portion of the LAN table.

► **To add/remove addresses to the Static Table:**

- Select **Configuration > Bridging > Static Forwarding....**

The Static Forwarding Table appears (*Figure 2-3*).

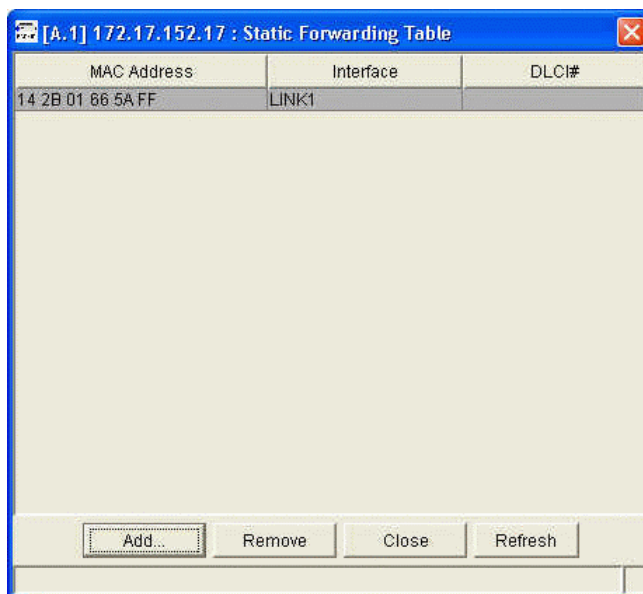


Figure 2-3. Static Forwarding Table

Table 2-2. Static Forwarding Table Parameters

Parameter	Possible Values / Remarks
MAC Address	The physical address of the device.
Interface	The selected interface.
DLCI#	Data Link Control Identifier Only for links with FR protocol type.
[Add...]	Click <b>&lt;Add...&gt;</b> to open the Add IP Net Entry dialog box (Figure 2-4). Enter the desired parameters and click <b>&lt;Set&gt;</b> .
[Remove]	Remove an address from the Static Forwarding Table by selecting an address and clicking <b>&lt;Remove&gt;</b> .

► **To add a static entry:**

1. In the Static Forwarding table (Figure 2-3), click **<Add...>**.  
The Add Static Entry dialog box appears (Figure 2-4).

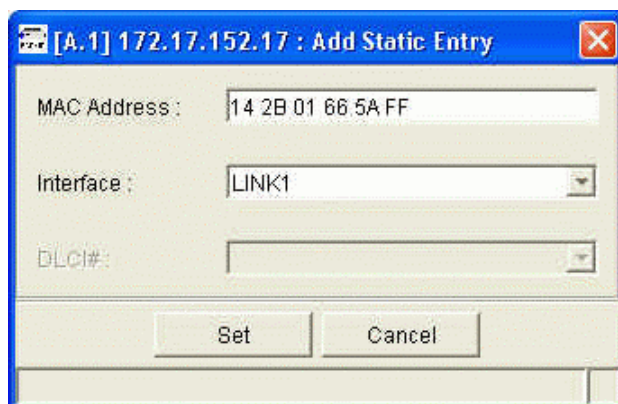


Figure 2-4. Add Static Entry

2. Configure desired parameters (see Table 2-2).
3. Click **<Set>**.

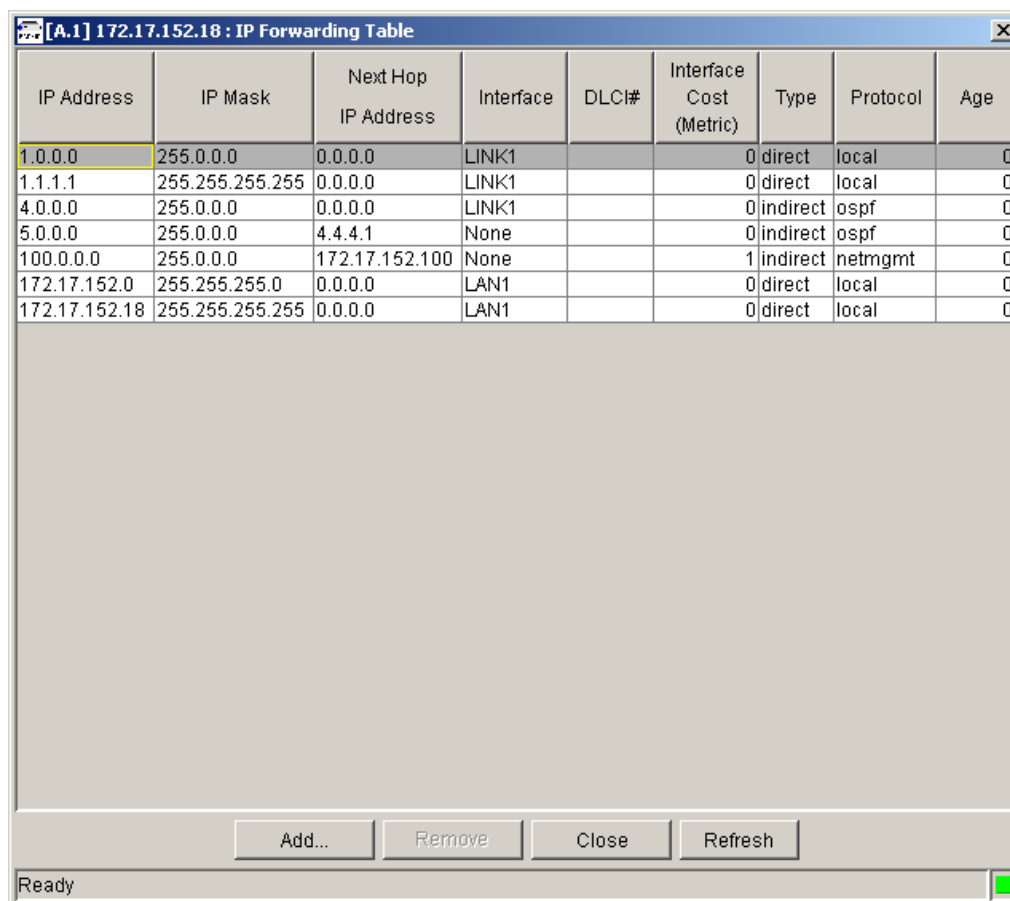
## 2.4 Routing the IP

### Forwarding Table

► To display the IP Forwarding Table:

- Select **Configuration > IP Routing > Forwarding....**

The IP Forwarding Table appears (*Figure 2-5*).



IP Address	IP Mask	Next Hop IP Address	Interface	DLCI#	Interface Cost (Metric)	Type	Protocol	Age
1.0.0.0	255.0.0.0	0.0.0.0	LINK1		0	direct	local	0
1.1.1.1	255.255.255.255	0.0.0.0	LINK1		0	direct	local	0
4.0.0.0	255.0.0.0	0.0.0.0	LINK1		0	indirect	ospf	0
5.0.0.0	255.0.0.0	4.4.4.1	None		0	indirect	ospf	0
100.0.0.0	255.0.0.0	172.17.152.100	None		1	indirect	netmgmt	0
172.17.152.0	255.255.255.0	0.0.0.0	LAN1		0	direct	local	0
172.17.152.18	255.255.255.255	0.0.0.0	LAN1		0	direct	local	0

Ready

Figure 2-5. IP Forwarding Table

Table 2-3. IP Forwarding Parameters

Parameter	Possible Values / Remarks
IP Address	The IP address of forwarding device.
IP Mask	A unique 32 bit value allowing the recipient of IP packets to distinguish between different host IDs.
Next Hop IP Address	The IP address of the next hop.
Interface	The selected interface.
DLCI#	Data Link Control Identifier Only for links with FR protocol type.
Interface Cost (Metric)	The number of routers through which a packet must pass to arrive at its destination. <b>1..15</b>
Type	<b>Other, Invalid, Direct, Indirect</b>
Protocol	The protocol of the interface. <b>Local</b> indicates a local IP address <b>NetMgmt</b> indicates a static IP address <b>RIP2</b> indicates a dynamic IP address <b>OSPF</b> indicates IP address is determined using OSPF protocol.
Age	The number of seconds since this route was last updated.
[Add...]	Click < <b>Add...</b> > to open the Add IP Net dialog box. Enter the desired parameters and click < <b>Set</b> >.
[Remove]	Remove an address from the IP Forwarding Table by selecting an address and clicking < <b>Remove</b> >.  Only static addresses can be changed.

## Address Resolution Protocol Table

- To display the ARP table:
  - Select **Configuration > IP Routing > ARP....**

The ARP Stations Table appears (*Figure 2-6*).

Interface	MAC Address	Net Address	Net To Media Type
LAN1	00 0A F4 62 44 80	172.17.152.1	dynamic

*Figure 2-6. ARP Stations Table*

*Table 2-4. ARP Stations Parameters*

Parameter	Possible Values / Remarks
Interface	The selected interface.
MAC Address	The physical address of the device.
Net Address	The IP address of the MAC Address.
Net to Media Type	<b>Other, Invalid, Dynamic, Static</b>

## IP Address Table

- To display the IP address table:
  - Select **Configuration > IP Routing > IP Address....**

The IP Addresses Table appears (*Figure 2-7*).

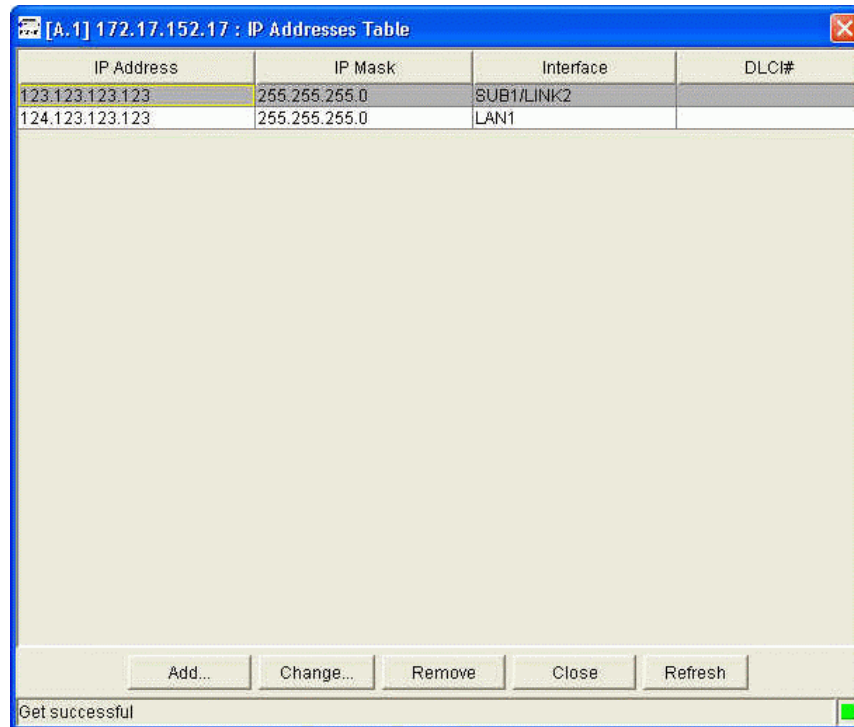


Figure 2-7. IP Addresses Table

Table 2-5. IP Address Parameters

Parameter	Possible Values / Remarks
IP Address	The IP address of forwarding device. <b>1.0.0.0..255.255.255.255</b>
IP Mask	A unique 32 bit value allowing the recipient of IP packets to distinguish between different host IDs. <b>0.0.0.0..255.255.255.255</b>
Interface	The selected interface.
DLCI#	Data Link Control Identifier Only for links with FR protocol type.
[Add...]	Click <Add...> to open the Add IP Address dialog box ( <i>Figure 2-8</i> ). Enter the desired parameters and click <Set>.
[Change...]	Change an address from the IP Address Table by selecting an address and clicking <Change...>. The Change IP Address dialog box appears. Change parameters and click <Set>.
[Remove]	Remove an address from the IP Address Table by selecting an address and clicking <Remove>.

► **To add an IP address:**

1. In the IP Address Table ([Figure 2-7](#)), click <**Add...**>.  
The Add IP Address dialog box appears ([Figure 2-8](#)).

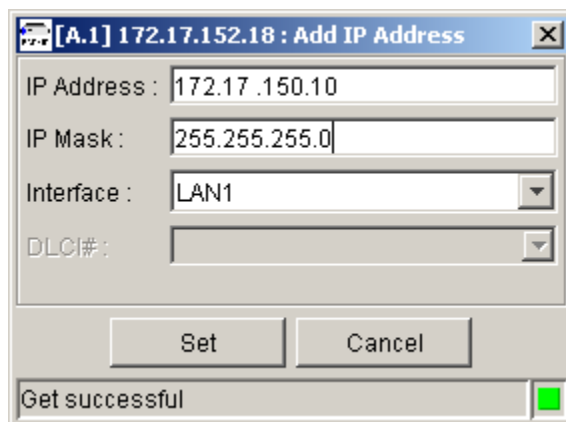


Figure 2-8. Add IP Address

**Note** When working in OSPF mode, each LAN can have only one IP address.

2. Configure desired parameters (see [Table 2-3](#)).
3. Click <**Set**>.

► **To change an IP address:**

1. In the IP Address Table ([Figure 2-7](#)), click <**Change...**>.  
The Change IP Address dialog box appears ([Figure 2-9](#)).

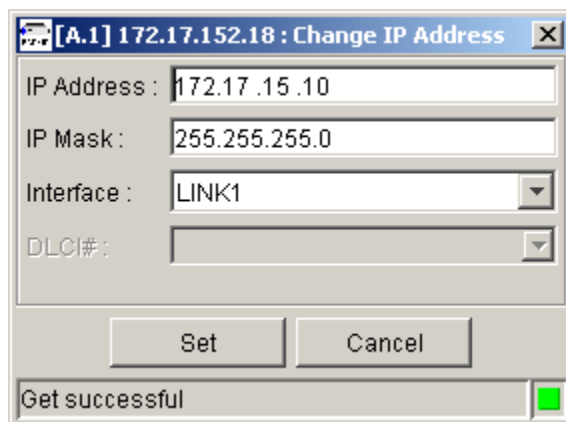


Figure 2-9. Change IP Address

2. Configure desired parameters (see [Table 2-3](#)).
3. Click <**Set**>.

## 2.5 OSPF

RADview allows you to configure OSPF and view OSPF information.

### Configuring OSPF

► **To enable OSPF:**

1. Select **Configuration > OSPF > Parameters....**

The OSPF Parameters dialog box appears.

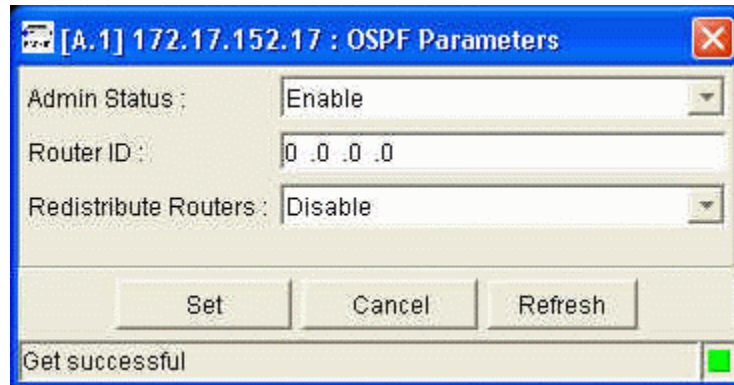


Figure 2-10. OSPF Parameters (Enable)

2. In the Admin Status field, select **Enable**.
3. Enter the **Router ID**.
4. Enable or disable **Redistribute Routes**.
5. Click **<Set>** to implement the changes.

The following confirmation message appears:

This operation will cause Restart of the device /n Connection with Agent will be lost."

6. Click **<OK>**.



► **To disable OSPF:**

1. Select **Configuration > OSPF > Parameters....**

The OSPF Parameters dialog box appears.

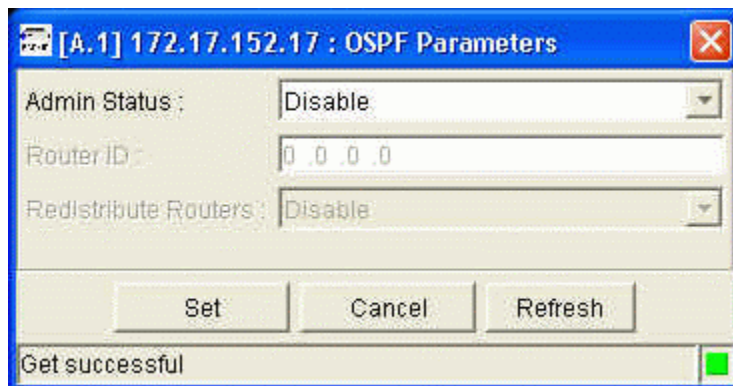


Figure 2-11. OSPF Parameters (Disable)

2. In the Admin Status field, select **Disable**.
3. Click **<Set>** to implement the changes.  
The following confirmation message appears:  
"This operation will cause Restart of the device /n Connection with Agent will be lost."
4. Click **<OK>**.

Table 2-6. OSPF Parameters

Parameter	Possible Values / Remarks
Admin Status	Enable/Disable
Router ID	The IP address format. Required if OSPF is enabled. Not available is OSPF is disabled.
Redistribute Routers	Enable/Disable Not available is OSPF is disabled.

## OSPF Areas

### ► To display the OSPF Area Table:

- Select **Configuration > OSPF > Area Table....**

The OSPF Area Table appears.

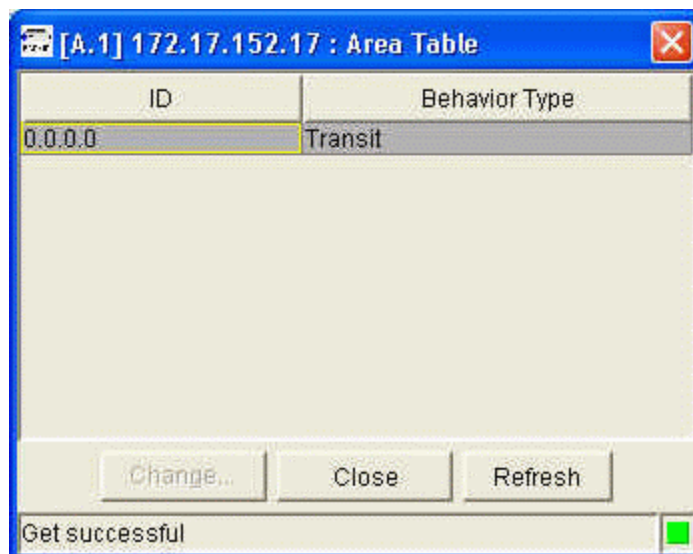


Figure 2-12. OSPF Area Table

Table 2-7 OSPF Area Table Parameters

Parameter	Possible Values / Remarks
ID	The IP address of the area. <b>1.0.0.0..255.255.255.255</b>
Behavior Type	<b>Transit, Stub, NSSA</b>
[Change...]	Change an OSPF Area behavior by selecting an ID and clicking < <b>Change...</b> >. The Change Area Parameters dialog box appears. Change parameters and click < <b>Set</b> >.

### ► To change parameters of an area:

1. In the OSPF Area Table, click <**Change...**>.  
The Change Area Parameters dialog box appears.
2. Configure desired parameters (see [Table 2-7](#)).
3. Click <**Set**>.

## OSPF Area Aggregation

### ► To display the OSPF Area Aggregation Table:

- Select **Configuration > OSPF > Area Aggregation....**

The OSPF Area Aggregation Table appears.

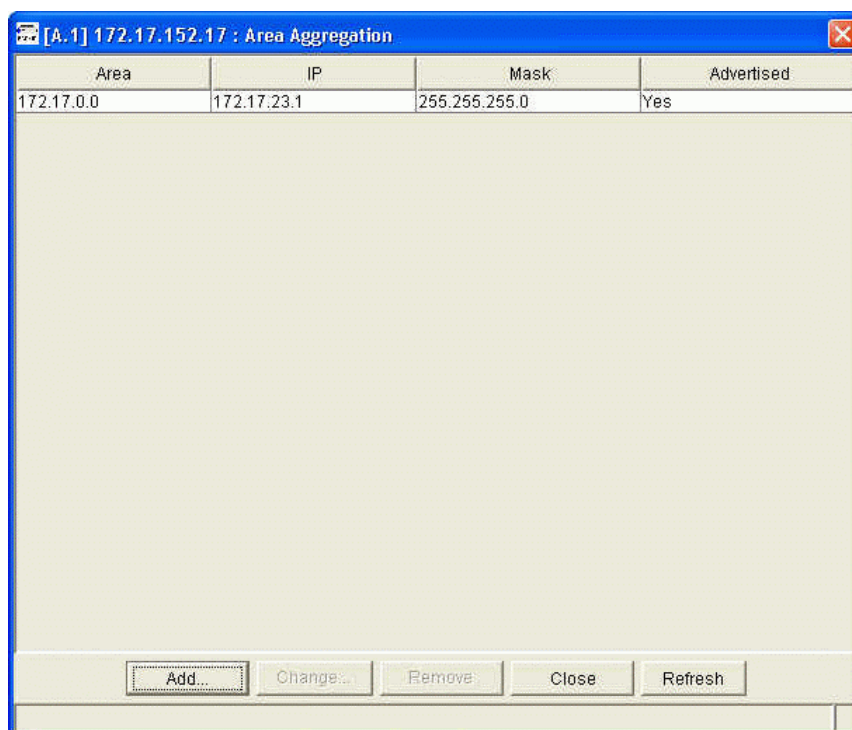


Figure 2-13. OSPF Area Aggregation Table

Table 2-8 OSPF Area Aggregation Parameters

Parameter	Possible Values / Remarks
Area	The ID of the area. <b>1.0.0.0..255.255.255.255</b>
IP	The IP address of the network. <b>1.0.0.0..255.255.255.255</b>
Mask	A unique 32 bit value allowing the recipient of IP packets to distinguish between different host IDs. <b>0.0.0.0..255.255.255.255</b>
Advertised	Advertising matching is enabled/disabled.
[Add...]	Click < <b>Add...</b> > to open the Add Area Aggregation dialog box (Figure 2-8). Enter the desired parameters and click < <b>Set</b> >.
[Change...]	Change an address from the Area Aggregation Table by selecting an address and clicking < <b>Change...</b> >. The Change Area Aggregation dialog box appears. Change parameters and click < <b>Set</b> >.
[Remove]	Remove an address from the Area Aggregation Table by selecting an address and clicking < <b>Remove</b> >.

► **To add an Area Aggregation entry:**

1. In the Area Aggregation Table, click **<Add...>**.  
The Add Area Aggregation dialog box appears.

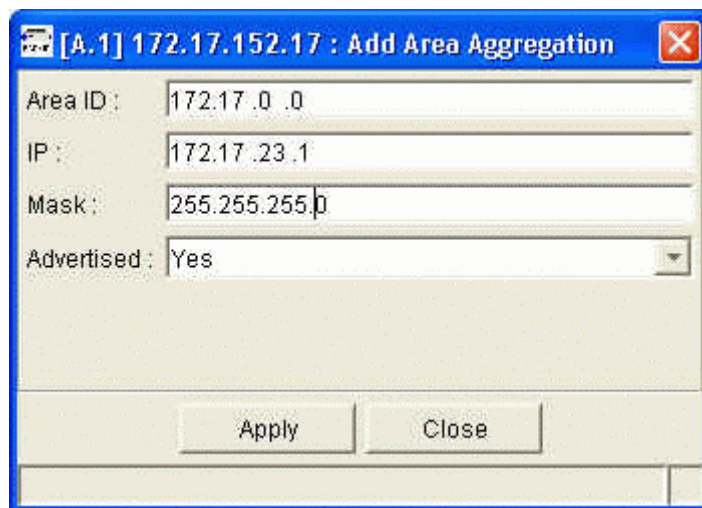


Figure 2-14. Add Area Aggregation

2. Configure desired parameters (see [Table 2-8](#)).
3. Click **<Apply>**.  
(Clicking **<Apply>** performs **Set** operation without closing dialog box.)
4. When all entries have been added, click **<Close>**.  
The Add Area Aggregation dialog box closes and all added entries appear at the end of the list.

► **To enable/disable Advertising for an area aggregation:**

1. In the Area Aggregation Table, click **<Change...>**.  
The Change Area Aggregation dialog box appears. This dialog is the same as the Add Area Aggregation dialog box, except that the only parameter that can be changed is **Advertised**.
2. Select **Yes** or **No** for the **Advertised** parameter and click **<Set>**.

## OSPF Information

RADview enables you to view information regarding the following categories:

- Interfaces
- Neighbors
- Database.

## OSPF Interfaces Information

### ► To display the OSPF Interfaces table:

- Select **Configuration > OSPF > Information > Interfaces....**

The Interfaces Table appears.

IP Address/ Interface	Area ID	Interface Type	Priority	Designated Router
1.1.1.1	0.0.0.0	Point To Point	0	0.0.0.0
172.17.152.18	0.0.0.0	Broadcast	0	172.17.152.18

Figure 2-15. Interfaces Table

Table 2-9. Interfaces Parameters

Parameter	Possible Values / Remarks
IP Address/Interface	The IP address or the link number of the interface.
Area ID	The IP address associated with the area.
Interface Type	<b>Broadcast, NBMA, Point To Point, Point To Multipoint</b>
Priority	The interface priority.
Designated Router	The IP address of the router.

## OSPF Neighbors Information

### ► To display the OSPF Neighbors table:

- Select **Configuration > OSPF > Information > Neighbors....**

The Neighbors Table appears.

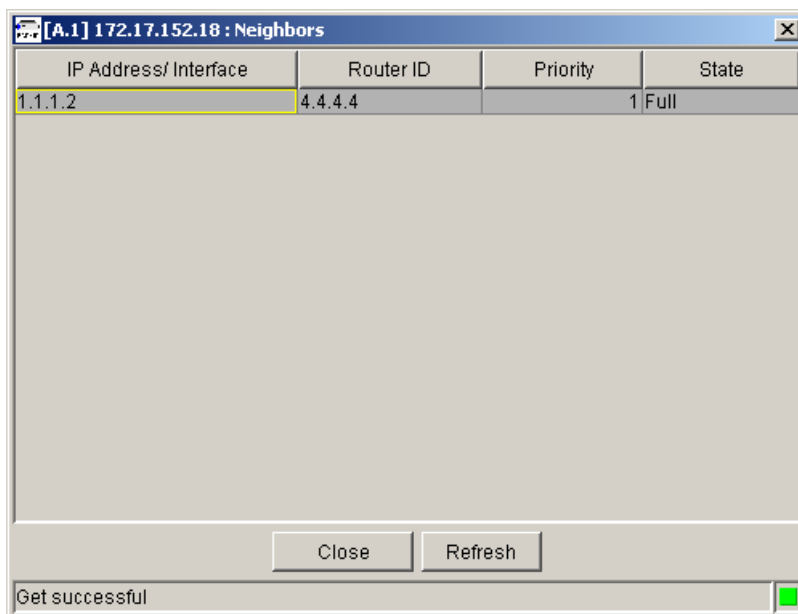


Figure 2-16. Neighbors Table

Table 2-10. Neighbors Parameters

Parameter	Possible Values / Remarks
IP Address/Interface	The IP address or the link number of the interface.
Router ID	The IP address of the relevant router.
Priority	The interface priority.
State	<b>Down, Attempt, Init, Two Way, Exchange Start, Exchange, Loading, Full</b>

## OSPF Database Information

### ► To display the OSPF Database table:

- Select **Configuration > OSPF > Information > Database....**

The Database Table appears.

Area ID	DB Type Link	Link State ID	Originating Router	Seq No.	Age (sec)	Check Sum
0.0.0.0	Router	4.4.4.4	4.4.4.4	-2147483641	389	2988
0.0.0.0	Router	172.17.52.18	172.17.52.18	-2147483641	388	11334

Close Refresh

Get successful

Figure 2-17. Database Table

Table 2-11. Database Parameters

Parameter	Possible Values / Remarks
Area ID	The IP address associated with the area.
DB Type Link	<b>Router, Network, Summary, AS Summary, AS External, Multicast, NSSA External</b>
Link State ID	The IP address format.
Originating Router	The IP address of the originating router.
Seq No	The sequence number.
Age	Age in seconds
Check Sum	Check sum validation value

## 2.6 Viewing the Connection Status

RADview enables you to view the list of all the logical links related to the physical links of the device.

➤ **To display the connection status of the device:**

- Select **Configuration > Connection Status...**

The All Links Connections list appears (*Figure 2-18*).

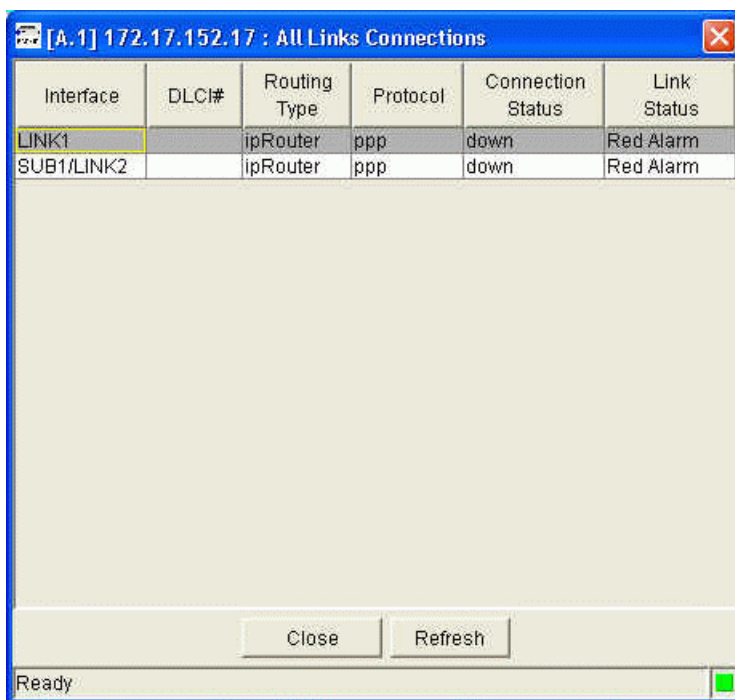


Figure 2-18. All Links Connections List

Table 2-12. All Links Connections Parameters

Parameter	Possible Values / Remarks
Interface	The selected interface.
DLCI#	Data Link Control Identifier Only for links with FR protocol type.
Routing Type	The routing type of the selected interface.
Protocol	The protocol being used.
Connection Status	The present connection status of the device.
Link Status	The link status of the device.



## 2.7 Configuring the Dynamic Host Configuration Protocol (DHCP)

RADView enables you to configure the Dynamic Host Configuration Protocol (DHCP).

► **To display the DHCP:**

- Select **Configuration > System Commands > DHCP...**

The DHCP table appears (*Figure 2-19*).

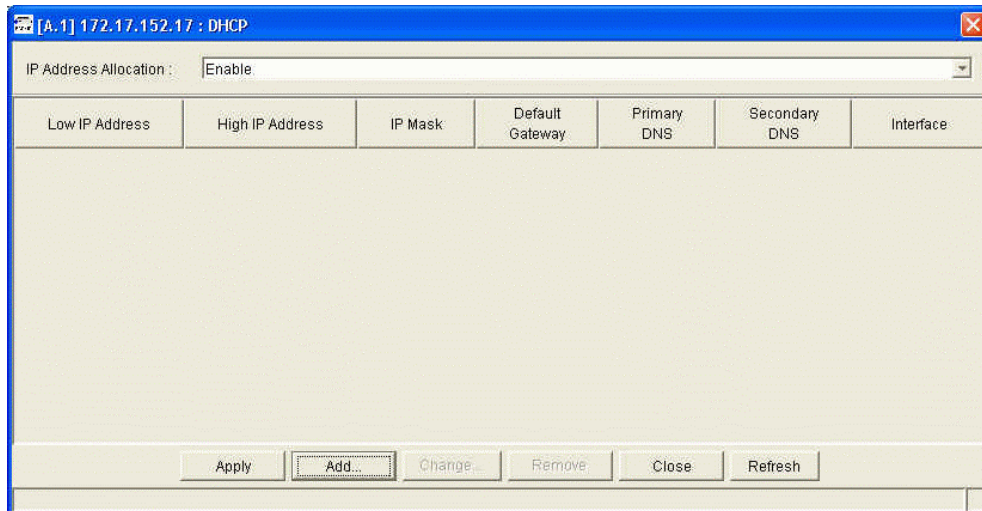


Figure 2-19. Dynamic Host Configuration Protocol Table

Table 2-13. Dynamic Host Configuration Protocol Parameters

Parameter	Possible Values / Remarks
IP Address Allocation	<b>Enable, Disable</b>
Low IP Address	Specifies the lower boundary for the IP address range.
High IP Address	Specifies the upper boundary for the IP address range.
IP Mask	Specifies the IP Mask for the IP address range.
Default Gateway	Specifies the default Gateway IP address for workstations that receive IP addresses in the range defined by Low and High IP Address.
Primary DNS	The IP address of the DNS server that can be used by the workstation.
Secondary DNS	The IP Address of an additional DNS server used as an alternative to the Primary DNS.

Table 2-13. Dynamic Host Configuration Protocol Parameters (Cont.)

Parameter	Possible Values / Remarks
Interface	The interface through which the remote interface of the IP address is received. <b>All, LAN1, LAN2, Any LAN, WAN</b>
[Apply]	To save changes in table, click <b>&lt;Apply&gt;</b> .
[Add...]	To add an entry to the table, click <b>&lt;Add...&gt;</b> . Configure the parameters in the Add DHCP Entry table and click <b>&lt;Set&gt;</b> . A maximum of 10 entries is allowed in the table.
[Change...]	To change an entry, select it and click <b>&lt;Change...&gt;</b> . Make desired changes in Change DHCP Entry table and click <b>&lt;Set&gt;</b> .
[Remove]	To delete an entry, select it and click <b>&lt;Remove&gt;</b> .

► **To add an DHCP entry:**

1. In the DHCP Table, click **<Add...>**.

The Add DHCP Entry dialog box appears.

Figure 2-20. Add DHCP Entry

2. Configure desired parameters (see [Table 2-13](#)).
3. Click **<Set>**.

The Add DHCP Entry dialog box closes.

► **To change a DHCP entry:**

1. In the DHCP Table, click **<Change...>**.

The Change DHCP dialog box appears.

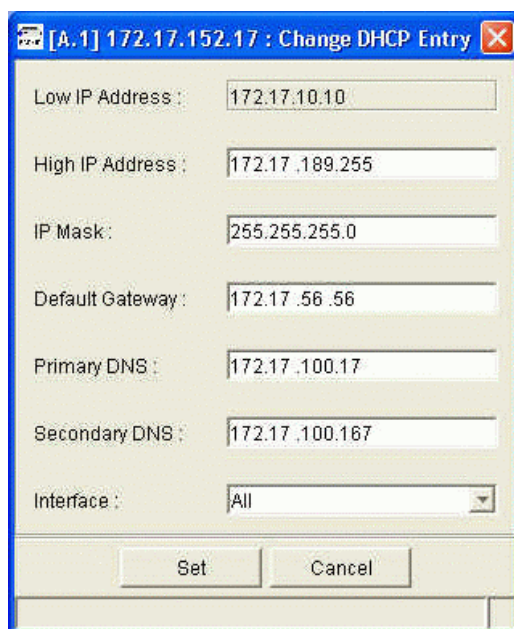


Figure 2-21. Change DHCP Entry

2. Configure desired parameters (see [Table 2-13](#)).
3. Click **<Set>**.

The Add DHCP Entry dialog box closes.

---

## 2.8 Resetting the Device

RADview enables you to reset the device.

► **To reset the device:**

1. Select **Configuration > System Commands > Reset...**

or

click the shortcut key on the toolbar .

The following message appears: "RESETTING BROUTER. Operation may disrupt network data."



Figure 2-22. Reset Brouter

2. Click **<OK>** to confirm reset.

The system is reset.


## 2.9 Polling the Agent

RADview allows you to poll the FCD-IP device.

➤ **To poll the agent:**

- Select **Configuration > Poll Agent**

or

click the shortcut key on the toolbar .

The system polls the agent immediately.

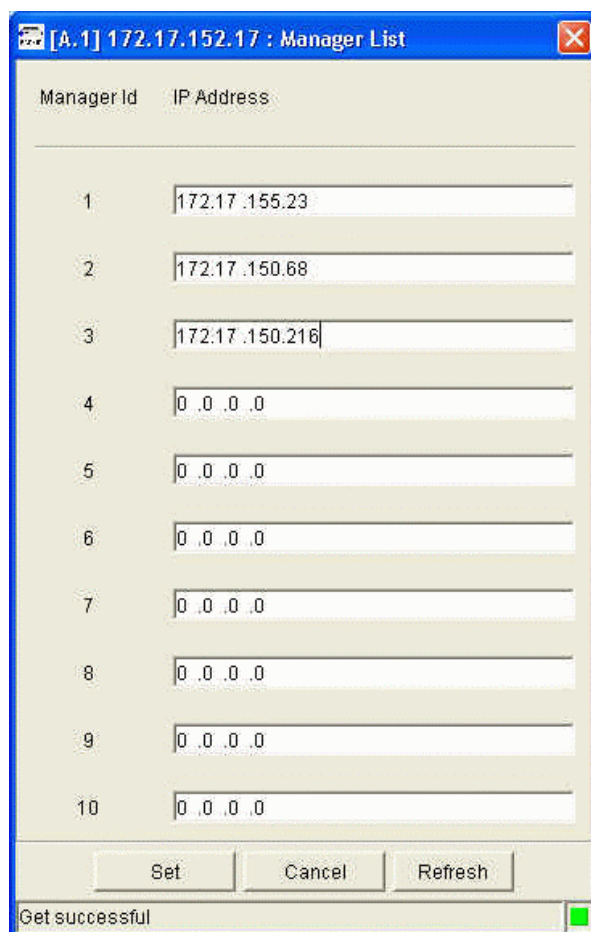
## 2.10 Configuring SNMP

RADview enables you to view and modify SNMP settings; enabling you to specify management stations that can receive FCD-IP traps. In the FCD-IP Manager List, you can enter up to ten IP addresses of the relevant management stations.

➤ **To view/specify management station IP addresses to which to send traps:**

1. Select **Options > Manager List....**

The Manager List dialog box appears (*Figure 2-23*).



The Manager List dialog box is titled "[A.1] 172.17.152.17 : Manager List". It contains a table with two columns: "Manager Id" and "IP Address". The table has 10 rows, numbered 1 to 10. The IP addresses are as follows:

Manager Id	IP Address
1	172.17.155.23
2	172.17.150.68
3	172.17.150.216
4	0.0.0.0
5	0.0.0.0
6	0.0.0.0
7	0.0.0.0
8	0.0.0.0
9	0.0.0.0
10	0.0.0.0

At the bottom of the dialog box, there are three buttons: "Set", "Cancel", and "Refresh". Below the buttons, there is a status bar that says "Get successful" with a green square icon.

Figure 2-23. Manager List

2. Configure the IP Address for the different managers.
3. Click <Set>.

*Table 2-14. Manager List Parameters*

Parameter	Possible Values / Remarks
Manager ID	The ID number of the manager.
IP Address	The IP address of the manager.

## 2.11 Switching Between Edit and Agent View

The device is managed with two different community views: one for the TDM scope, and one for the rest of the parameters. A password provides protection for the TDM scope preventing you from unintentionally changing the parameters of the E1/T1, SHDSL and Voice parameters.

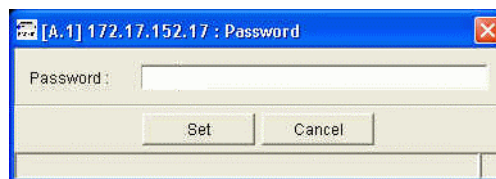
The Password is configured via the terminal.

**Note** *Once the password has been entered, you will not need to re-enter it again when switching between Edit and Agent Views in other levels.*

➤ **To enter the password:**

1. Select Options > Password...

The password dialog box appears (*Figure 2-24*).

*Figure 2-24. Password Dialog Box*

2. Enter a password (up to twenty characters).



# Chapter 3

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## Port Management

This chapter describes RADview's configuration and operation procedures for the FCD-IP LINK and LAN. The LINK or LAN Level is available when a LINK or LAN is selected. Some LINKS have both edit and agent levels. This chapter details the different management options for each LINK and LAN separately.

---

### 3.1 Edit and Agent Views

**Note** *Certain TDM ports can be displayed in both Edit and Agent Views. Configuration is performed in the Edit mode. In Agent View, the parameters are Read-Only.*

► **To switch between Edit and Agent views:**

1. Select the appropriate interface.

The Agent view is displayed for the selected link.

2. Switch to Edit View by doing one of the following:

- Click the Edit/Agent View button on the toolbar 

or

- Select **Window > Edit View/Agent View** to switch to Edit/Agent View.

---

### 3.2 Configuring Interface Information

This section describes how to view and configure interface information.

**Note** *For information on configuring physical port parameters, see [Configuring Physical Parameters](#).*

#### Configuring E1/T1, CHANNEL, ISDN, and Voice Interface Information

This section describes how to view and configure E1/T1, CHANNEL (V.24, V.35), ISDN and Voice (FXS, FXO and E&M) interface information. The parameters of the Interface Information dialog boxes differ depending on the selected interface.

- Notes**
- For information on E1/T1 over SHDSL, see [Configuring E1/T1 over SHDSL Interface Information](#).
  - Voice interface configuration can be performed in both Agent and Edit Views.

► **To configure interface information:**

1. Select a Link or Channel.

The Agent view is displayed for the selected object.

2. Select **Configuration > Interface Info...**

The Interface Information dialog box appears. There are two tabs: Info and Link Data.

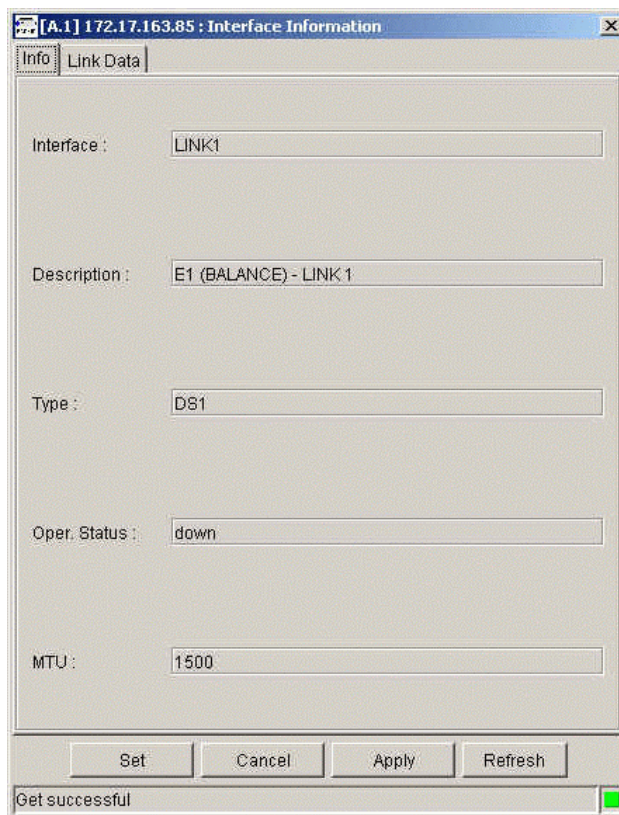


Figure 3-1. Interface Information Info Tab

3. Click on the required tab.
4. Configure the desired parameters.
5. Click **<Set>**.

Table 3-1. Info Tab Parameters for E1/T1, CHANNEL, ISDN, and Voice

Parameter	Possible Values / Remarks
Interface	The selected interface.
Description	Description of the selected interface.
Type	The type of interface. <b>DS0 Bundle, DS1. Modem, E&amp;M, FXO, FXS</b>
Oper Status	The operational status of link. <b>Up, Down</b>
MTU (not available for Voice, Channel, or Sub Link interfaces)	The maximum Transmit Unit for IP fragmentation. Frames larger than MTU are fragmented into smaller units when sent through the specified interface



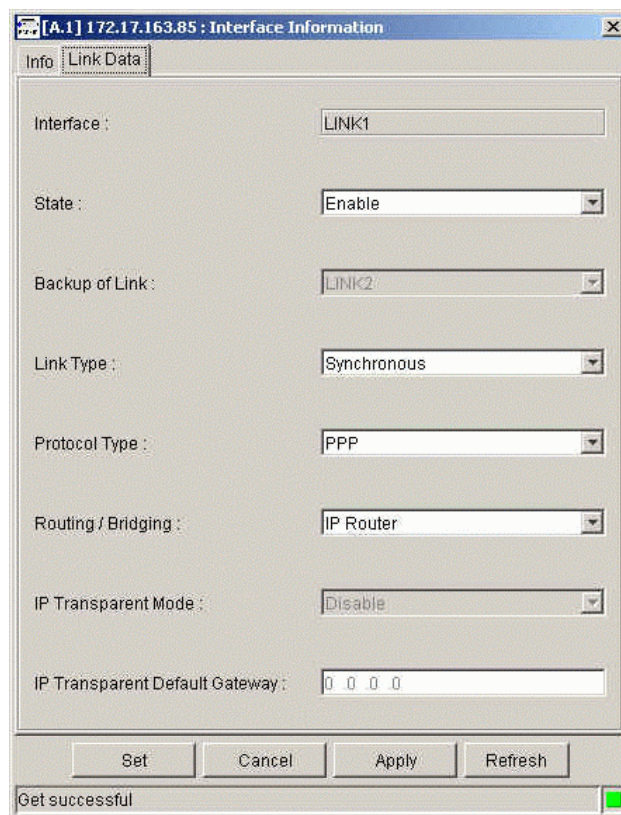


Figure 3-2. Interface Information Link Data Tab

- Notes**
- Link Data tab is disabled for Sub and Voice links.
  - Changing the protocol type from Frame Relay (RFC 1490) to any other protocol will cause the device to reset.  
The following message appears "This operation will cause HW reset of the Device. Continue?"  
Click <OK> to confirm reset.

Table 3-2. Interface Information Link Data Tab Parameters

Parameter	Possible Values / Remarks
Interface	The selected interface.
State	<b>Enable, Disable, Backup</b> (only if there is more than one link)
Backup of Link	The combo box listing links in current configuration. <b>Note:</b> This field is disabled for SUB links
Link Type	<b>Synchronous, Asynchronous</b> (only for V.24 connector)
Protocol Type (not available for the SUB LINK or CHANNEL)	<b>Slip, Cslip, PPP, HDLC Framing, RFC 1490</b>

Table 3-2 Interface Information Link Data Tab Parameters (Cont.)

Parameter	Possible Values / Remarks
Routing / Bridging (not available for the SUB LINK or CHANNEL)	<b>Bridge, IP Router, IPX Router, IP and IPX Router, IP Brouter, IPX Brouter, IP and IPX Brouter</b>
IP Transparent Mode	<p>Enables/disables IP transparent mode. When this mode is enabled, all frames (including broadcast and multicast frames) are forwarded from E1/T1 to LAN and from LAN to E1/T1.</p> <p><b>Disable, Enable All</b></p> <p><b>Note:</b> This field is not available in the following cases:</p> <ul style="list-style-type: none"> <li>If any of the following interfaces exists on the device: LINK 3; LAN 2; ISDN; or a non-Channel X.21(4), V.24(11), RS-530(3), or DB-25(17)</li> <li>When the value in the Routing/Bridging field is one of the following: Bridge, IPX Router, IPX Brouter</li> </ul> <p>When the selected interface is a Channel</p>
IP Transparent Default Gateway	Specifies the default Gateway IP address used for transparent IP.

## Configuring SHDSL Interface Information

This section describes how to view and configure SHDSL interface information.

### ► To configure interface information:

1. Select an SHDSL Link.  
The Agent view is displayed for the selected link.
2. Select **Configuration > Interface Info...**  
The Interface Information dialog box appears. There are two tabs: Info and Link Data.

**Note** Link Data tab is disabled for Sub and Voice links.

3. Click on the required tab.
4. Configure the desired parameters.
5. Click **<Set>**.

Table 3-3. Info Tab Parameters for SHDSL

Parameter	Possible Values / Remarks
Interface	The selected interface.
Type	The type of interface. <b>SHDSL</b>
Description	Description of the selected interface.
Oper Status	The operational status of link. <b>Up, Down</b>
MTU	The maximum Transmit Unit for IP fragmentation. Frames larger than MTU are fragmented into smaller units when sent through the specified interface

**Note** Changing the protocol type from Frame Relay (RFC 1490) to any other protocol will cause the device to reset.  
The following message appears "This operation will cause HW reset of the Device. Continue?"  
Click **<OK>** to confirm reset.

Table 3-4. Interface Information Link Data Tab Parameters for SHDSL

Parameter	Possible Values / Remarks
Interface	The selected interface.
State	<b>Enable, Disable, Backup</b> (only if there is more than one link)
Backup of Link	The combo box listing links in current configuration. <b>Note:</b> If Link 3 is a SUB link, it is not available as a backup link.
Link Type	<b>Synchronous</b>
Protocol Type	<b>PPP</b> , RFC1490, HDLC Framing
Routing / Bridging	<b>Bridge, IP Router, IPX Router, IP and IPX Router, IP Brouter, IPX Brouter, IP and IPX Brouter</b>
IP Transparent Mode	<b>Disable, Enable All</b> <b>Note:</b> This field is not available in the following cases: <ul style="list-style-type: none"> <li>If any of the following interfaces exists on the device: LINK 3; LAN 2; ISDN; or a non-Channel X.21(4), V.24(11), RS-530(3), or DB-25(17)</li> <li>When the value in the Routing/Bridging field is one of the following: Bridge, IPX Router, IPX Brouter</li> </ul> When the selected interface is a Channel
IP Transparent Default Gateway	Specifies the default gateway IP address used for transparent IP.

## Configuring E1/T1 over SHDSL Interface Information

This section describes how to view and configure E1/T1 over SHDSL interface information.

**Note** For information on E1/T1 interfaces that are not over SHDSL, see [Configuring E1/T1, CHANNEL, ISDN, and Voice Interface Information](#).

➤ **To configure interface information:**

1. Select a Link or Channel.
2. Select **Configuration > Interface Info...**

The Interface Information dialog box appears. There are two tabs: Info and Link Data.

This dialog box is divided into two sections: the upper section displays SHDSL parameters and the lower section displays E1/T1 parameters.

**Note** Link Data tab is disabled for Sub links.

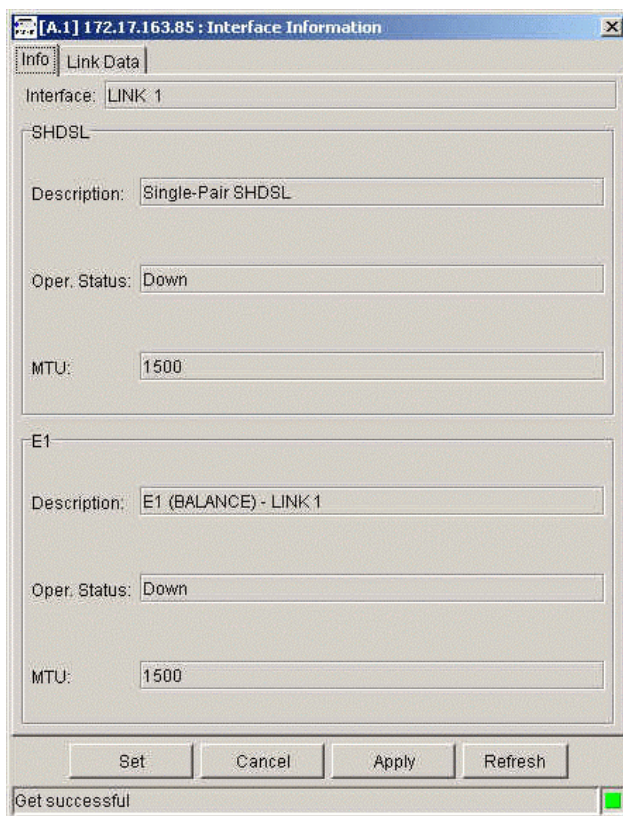


Figure 3-3. Interface Information Info Tab for E1/T1 over SHDSL

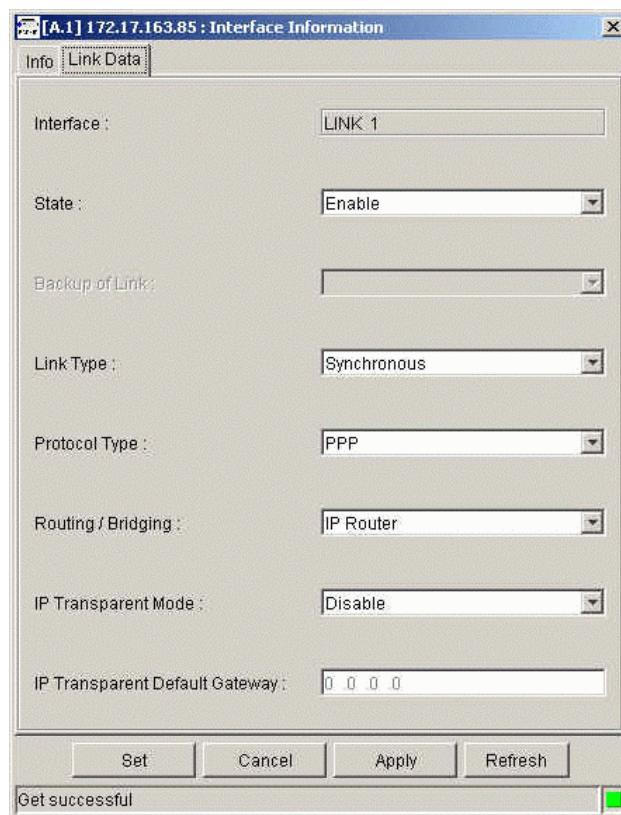


Figure 3-4. Interface Information Link Data Tab for E1/T1 over SHDSL

3. Click on the required tab.
4. Configure the desired parameters.
5. Click **<Set>**.

Table 3-5. Info Tab Parameters for E1/T1 over SHDSL

Parameter	Possible Values / Remarks
Interface	The selected interface.
Description	Description of the selected interface.
Oper Status	The operational status of link. <b>Up, Down</b>
MTU	The maximum Transmit Unit for IP fragmentation. Frames larger than MTU are fragmented into smaller units when sent through the specified interface

**Note** Changing the protocol type from Frame Relay (RFC 1490) to any other protocol will cause the device to reset.  
The following message appears "This operation will cause HW reset of the Device. Continue?"  
Click **<OK>** to confirm reset.

Table 3-6. Interface Information Link Data Tab Parameters for E1/T1 over SHDSL

Parameter	Possible Values / Remarks
Interface	The selected interface.
State	<b>Enable, Disable, Backup</b> (only if there is more than one link)
Backup of Link	The combo box listing links in current configuration. <b>Note:</b> This field is disabled for SUB links
Link Type	<b>Synchronous</b>
Protocol Type	<b>PPP, RFC1490, HDLC Framing</b>
Routing/Bridging	<b>Bridge, IP Router, IPX Router, IP and IPX Router, IP Brouter, IPX Brouter, IP and IPX Brouter</b>
IP Transparent Mode	<b>Disable, Enable All</b> <b>Note:</b> This field is not available in the following cases: <ul style="list-style-type: none"> <li>• If any of the following interfaces exists on the device: LINK 3; LAN 2; ISDN; or a non-Channel X.21(4), V.24(11), RS-530(3), or DB-25(17)</li> <li>• When the value in the Routing/Bridging field is one of the following: Bridge, IPX Router, IPX Brouter</li> <li>• When the selected interface is a Channel</li> </ul>
IP Transparent Default Gateway	Specifies the default gateway IP address used for transparent IP.



## Configuring LAN Interface Information

► To configure interface information for an Ethernet LAN:

1. Select the desired Ethernet LAN.
2. Select **Configuration > Interface Info...**

The Interface Information dialog box appears.

Figure 3-5. Interface Information – Ethernet LAN

**Note** Changing the values for Burn In MAC or Locally Administered will cause disconnection with the agent.

Table 3-7. Interface Information – Ethernet LAN Parameters

Parameter	Possible Values / Remarks
Interface	The selected interface.
Description	Description of the interface.
Type	The type of interface that appears in the MIB IF Table.
Oper Status	The operational status of link.
MTU	The maximum Transmit Unit for IP fragmentation. Frames larger than MTU are fragmented into smaller units when sent through the specified interface.
Rate (Mbps)	The transmission speed in Mbps.

Table 3-7. Interface Information – Ethernet LAN Parameters (Cont.)

Parameter	Possible Values / Remarks
<b>Active Address</b>	
Burn In MAC	Changing this parameter will cause disconnection with the agent.
Locally Administered	Changing this parameter will cause disconnection with the agent.
LAN State	<b>Enable, Disable</b> Selecting Disable for this parameter will cause disconnection with the agent.
Routing/Bridging	<b>Bridge, IP Router, IPX Router, IP and IPX Router, IP Brouter, IPX Brouter, IP and IPX Brouter</b> <b>Note:</b> Only for two LANS.

### 3.3 Configuring Physical Parameters

This section describes how to view and configure physical layer parameters of Async, ISDN, E1/T1, and SHDSL ports.

- Notes**
- For information on configuring interface information, see [Configuring Interface Information](#).
  - When configuring TDM parameters a password is required.

#### Configuring Async Link (V.24) Physical Parameters

**Note** Async links can only be V.24.

➤ **To configure Async physical parameters:**

1. Select the Async Link.
2. Select **Configuration > Physical Parameters...**  
The Async Link Parameters dialog box appears.
3. Configure the desired parameters.
4. Click **<Set>**.



The screenshot shows the 'Async Link Parameters' dialog box for interface [A.1] 172.17.163.85. The 'Interface' is set to LINK2. Communication parameters include Rate (Kbps) at 19.2, Stop Bits at One, Data Bits at 8, Parity at None, and Connection Type at Answer. The 'Modem' section shows Name as Modem1, Setting String as AT&C1&D2, Autobauding disabled, Speaker on, Analyze Answers enabled, and Reset Config unchecked. There are empty fields for Dialing Number and Local Number, and Number of rings before answer is set to 2. At the bottom are buttons for Add Modem, Remove Modem, Set, Cancel, and Refresh. A green status bar at the bottom left indicates 'Set successful'.

Figure 3-6. Async Link Parameters Dialog Box

Table 3-8. Async Link Parameters

Parameter	Possible Values / Remarks
Interface	LINK1, LINK2
Rate (Kbps)	2.4, 4.8, 9.6, 19.2, 38.4, 57.6, 115.2
Data Bits	8
Parity	<u>N</u> one, Odd, Even
Stop Bits	<u>O</u> ne, Two
Connection Type	<u>O</u> riginate, Answer, Originate and Answer
<b>Modem</b>	
Name	Maximum 50 characters <u>U</u> nlisted
Setting String	Maximum 80 characters in two rows <u>A</u> T& <u>C</u> 1& <u>D</u> 2
Autobauding	<u>D</u> isable, Enable
Analyze Answers	Disable, <u>E</u> nable
Speaker	Off, <u>O</u> n
Reset Config	Select the checkbox to reset the configuration <b>C</b> hecked, <u>U</u> nchecked
Dialing Number	<b>M</b> aximum 40 characters. Valid characters are: <b>0..9, P, T, W, ', @</b>

Table 3-8. Async Link Parameters (Cont.)

Parameter	Possible Values / Remarks
Local Number	<b>Maximum 40 characters.</b> Valid characters are: <b>0..9, P, T, W, ', @</b>
Number of rings before answer	<b>1..2..255</b>
[Add Modem...]	Click <b>&lt;Add Modem...&gt;</b> to open the Add Modem dialog box ( <a href="#">Figure 3-7</a> ). Enter the desired parameters and click <b>&lt;Set&gt;</b> .
[Remove Modem]	Remove a modem by selecting a modem from the Modem <b>Name</b> drop-down list and clicking <b>&lt;Remove Modem&gt;</b> .

➤ **To add a new modem to the modems list:**

1. In the Async Link Parameters dialog box, click **<Add Modem...>**.  
The Add New Modem dialog box appears.
2. Configure the desired parameters.
3. Click **<Set>**.

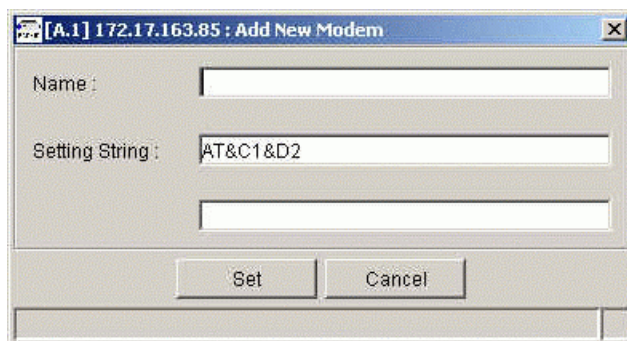


Figure 3-7. Add New Modem Dialog Box

Table 3-9. Add New Modem Parameters

Parameter	Possible Values / Remarks
Name	Maximum 50 characters
Setting String	Maximum 80 characters in two rows

➤ **To remove a modem from the modems list:**

1. In the Async Link Parameters dialog box, select a modem from the Modem **Name** drop-down list.
2. Click **<Remove Modem>**.
3. The system confirms the removal of the modem:  
"Removing the selected modem."

## Configuring ISDN Physical Parameters

► To configure ISDN physical parameters:

1. Select the ISDN Link.
2. Select **Configuration >Physical Parameters...**  
The ISDN dialog box appears.
3. Click on the desired tab and configure desired parameters.
4. Click **<Set>**.

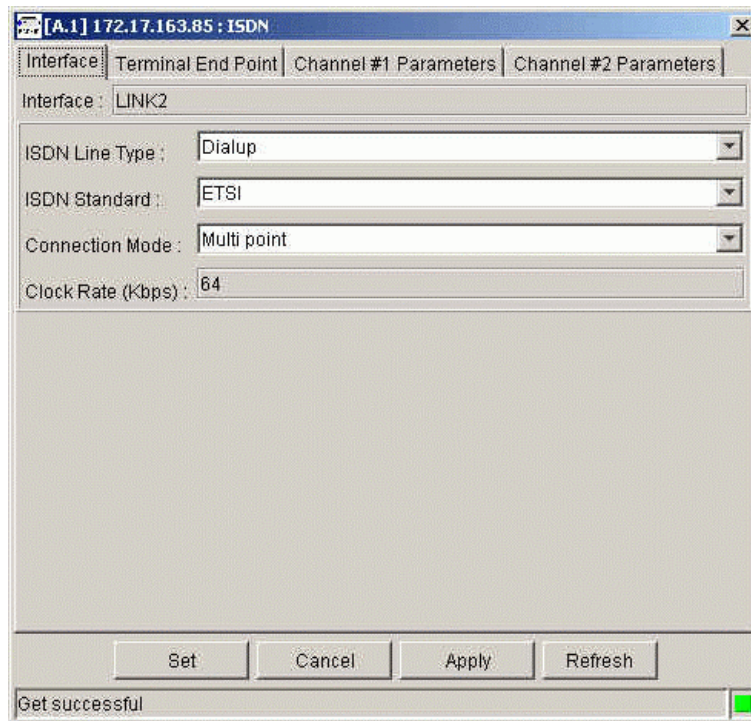


Figure 3-8. ISDN Parameters – Interface Tab

Table 3-10. ISDN Parameters – Interface Tab

Parameter	Possible Values / Remarks
Interface	LINK1, LINK2
ISDN Line Type	<b>Dialup, Leased</b>
ISDN Standard	<b>V1, ETSI, 5ESS, DMS100, National-1, NTT</b> Enabled when ISDN Line Type=Dialup
Connection Mode	<b>Point to Point, Multi Point</b>
Clock Rate (Kbps)	<b>56, 64</b>

Figure 3-9. ISDN Parameters – Terminal End Point Tab

Table 3-11. ISDN Parameters – Terminal End Point Tab

Parameter	Possible Values / Remarks
Interface	LINK1, LINK2
<b>ETSI</b>	
<b>Abstract Terminal 1</b>	
Terminal Index	The Terminal Index.
Service Provider ID (SPID)	The Service Provider ID . <b>Up to 20 digits</b>
Directory Number	The Directory Number. <b>Up to 18 digits</b>
TEI Management	<b>Dynamic, Static</b>
TEI Value	<b>0..63</b>
<b>Abstract Terminal 2</b>	
Terminal Index	The Terminal Index.
Service Provider ID (SPID)	The Service Provider ID. <b>Up to 20 digits</b>
Directory Number	The Directory Number. <b>Up to 18 digits</b>



Figure 3-10. ISDN Parameters - Channel Tab

Table 3-12. ISDN Parameters - Channel Tab

Parameter	Possible Values / Remarks
Interface	The selected interface.
Calling Number	The Calling Number. <b>Up to 18 digits</b>
Calling Sub-Number	The Calling Sub-Number. <b>Up to 6 digits</b>
Called Phone Number	The Called Phone Number. <b>Up to 18 digits</b>
Called Sub-Number	The Called Sub-Number. <b>Up to 6 digits</b>
Permission	<b>Originate, Answer, Originate and Answer</b>
Dial Back Phone Number	The Dial Back Phone Number. <b>Up to 18 digits</b>
Dial Back Sub Number	The Dial Back Sub-Number. <b>Up to 6 digits</b>

## Configuring E1/T1 Link Mode

- Notes**
- Link mode configuration is available for Main E1/T1 link for devices having two E1/T1 ports.
  - Note that, while the link mode can be configured only in the Edit View, switching traffic between links can only be performed in Agent mode, which detects the actual current mode of the link.

► **To configure E1/T1 link mode:**

1. Select **Link1**.
2. Select Configuration > Physical Parameters > **Mode....**

The E1/T1 Link Mode dialog box appears.

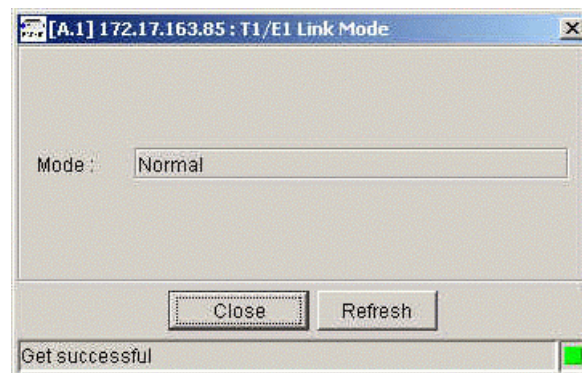


Figure 3-11. E1/T1 Link Mode

Table 3-13. E1/T1 Link Mode

Parameter	Possible Values / Remarks
Mode	<b>Normal</b> , Chain, Ring SUB, Ring Main, Redundancy
Wait to Restore	Wait to restore interval in minutes. 1-99 <b>Note:</b> This field is available only if Mode = Ring
Redundancy Online	Primary, Secondary <b>Note:</b> This field is available only if Mode = Redundancy
[Flip Cmd]	Toggles the Redundancy Online parameter. To change a redundant link from Primary to Secondary or vice versa, click <Flip Cmd> and then confirm the command by clicking OK when the confirmation message appears: "This operation will change the online link" Note that this button is Password protected.

## Configuring General E1/T1 Physical Parameters

► To configure E1/T1 general physical parameters:

1. Select an E1/T1 Link or Channel.
2. Select **Configuration > Physical Parameters > General....**

The E1/T1 Link Parameters dialog box appears.

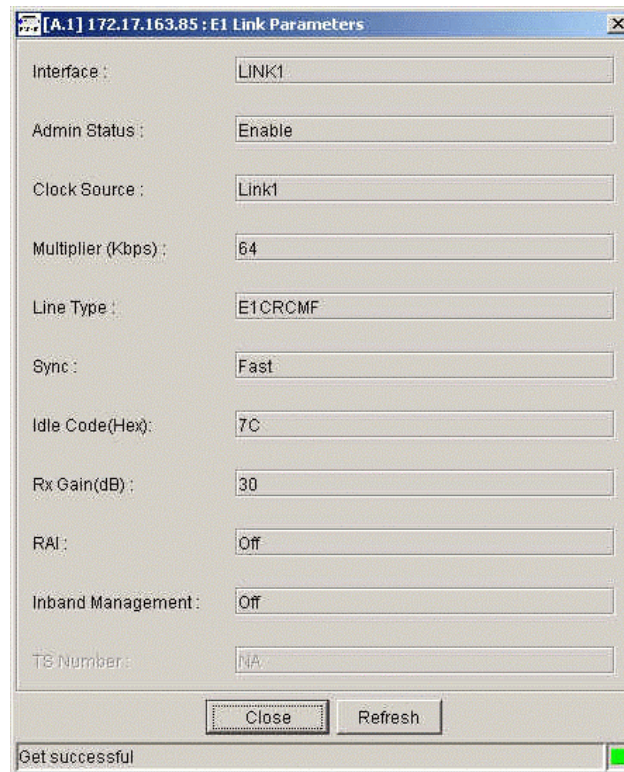


Figure 3-12. General Link Parameters (E1/T1 Ports)

Table 3-14. General Link Parameters (E1/T1 Ports)

Parameter	Possible Values / Remarks
Interface	The selected interface.
Admin Status	<b>Enable</b> , Disable
Clock Source	The clock source that synchronizes the network. <b>Internal</b> - system source clock is generated from an internal clock oscillator. <b>Link1</b> - – Sublink1/Link 2 Sublink 1 Sublink 2 Sublink 3.

Table 3-14. General Link Parameters (E1/T1 Ports) (Cont.)

Parameter	Possible Values / Remarks
Multiplier (Kbps)	The data rate of each DATA time slot. <b>56, 64</b> <i>Note: This parameter is only enabled for the main link only.</i>
Line Type	<b>T1:</b> <b>ESF</b> (24 frames per multiframe), <b>D4</b> (12 frames per multiframe).  <b>E1:</b> <b>E1</b> (G732N-2 frames per multiframe), - CCITT Rec. G.704 - Table 4a <b>E1-CRC</b> (G732NCRC), - CCITT Rec. G.704 - Table 4b <b>E1-MF</b> - CCITT Rec. G.704 - Table 4a, with TS16 multiframing enabled. <b>E1-CRC-MF</b> (G732SCRC-16 frames per multiframe), - CCITT Rec. G.704 - Table 4b, with TS16 multiframing enabled.
Line Code	The line coding method used for zero suppression. <i>Note: This parameter is only applicable for T1.</i> <b>B7ZS</b> coding, Jammed Bit zero suppression. A pulse is forced in bit 8 of each 8-bit period of each channel. Therefore, only 7 bits per channel (1.344 Mbps) is available for data. <b>B8ZS</b> coding, a specified pattern of normal bits and bipolar variations replaces a sequence of 8 zero bits. This option provides clear channel capability. <b>Trans</b> - Transparent (AMI) coding, no zero suppression is present.
Sync	Defines time required for the link to return to normal operation after a red alarm event (local loss of synchronization) has terminated <b>FAST</b> (after one second), <b>AT&amp;T 62411</b> (after ten seconds), <b>CCITT</b> (after 100 msec)
Tx Gain Mask (db)	The selected attenuation value brings your signal level closer to the expected repeater signal level on the cable. <i>Note: This parameter is only applicable for T1.</i> <b>NA, 7.5, 15, 22.5</b>
Line Length (feet)	<i>Note: This parameter is only applicable for T1.</i>  <b>NA, 0-133, 134-266, 267-399, 400-533, 534-655</b>
Idle code (Hex)	Hexadecimal code transmitted to fill idle (unused) time slots in frames transmitted through the selected port. <b>00 - 7C - FF</b>
Rx Gain	The maximum receive sensitivity in dB for the interface. <b>E1: 12dB, 30dB</b> <b>T1: 30dB, 36dB</b>



Table 3-14. General Link Parameters (E1/T1 Ports) (Cont.)


Parameter	Possible Values / Remarks
RAI	<p>The Remote Alarm Indication (for main links with sub links).</p> <p><b>Off, On</b></p> <p><b>For main links:</b> On transmits a yellow alarm indication on the E1 sub link when Link 1 is in yellow alarm state .</p> <p><b>For Sub links:</b> On transmits a yellow alarm indication on Link 1 when sub link E1 is in either yellow or red alarm state.</p> <p><b>Note:</b> This field exists only when the E1/T1 has a sub link.</p>
Inband Management	<p>The identifier of inband management over the link.</p> <p><b>Off, Dedicated TS</b></p>
TS Number	<p>TS being used as Dedicated TS</p> <p>Only applicable when Inband Management=Dedicated TS.</p>

## Configuring E1/T1 Time Slot (TS) Assignments

RADview enables you to program the routing of time slots. A complete description of the TS assignment function is discussed below.

### ► To configure TS parameters:

1. Select a Link or Channel.
2. Select **Configuration > Physical Parameters > TS Assign...**  
or

click the shortcut key on the toolbar 

The TS Assignment dialog box appears.

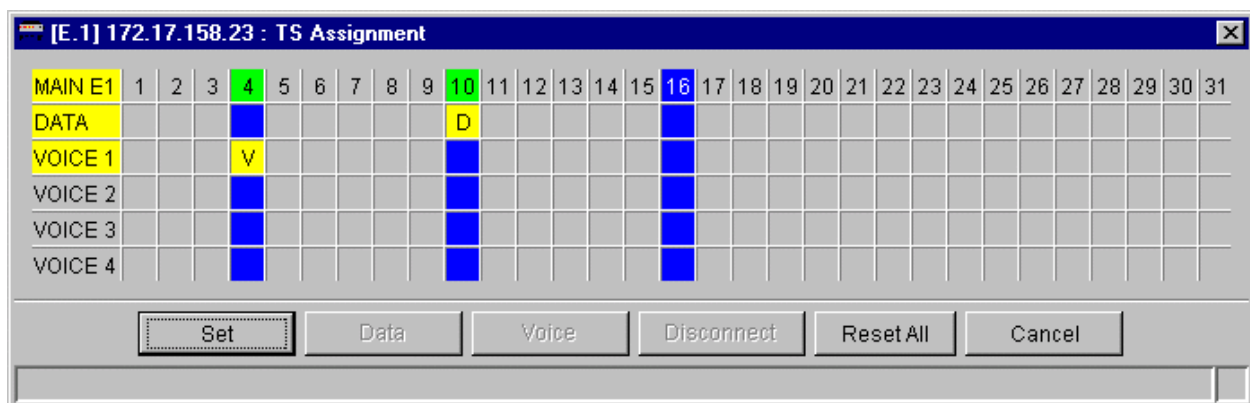


Figure 3-13. TS Assignment

MAIN E1	1	2	3	4	5		21	22	23	24			30	31
DATA 1 +2								D						
SUB1/ LINK 2		D							D	D		D	D	D
VOICE 1	V													
VOICE 2				V										
VOICE 3														
VOICE 4														

Figure 3-14. TS Assignment (New HW)

A rectangular grid displays the time slot assignments. Each row and each column represents the possible connections of a specific port.

Since all ports are connected to MAIN E1/T1 port, the top row shows the TS assignments of the MAIN E1/T1. For the MAIN E1, there are 31 Time Slots. For the MAIN T1, there are 24 Time Slots.

Colors, letters and guides indicate information about the time slots and ports represented in the grid. Their meanings are described below. In addition a Tool-Tip appears when the mouse cursor passes over a row, indicating the

### TS Color Codes

Since each TS has only one type and can be connected to only one port, each TS column can have only one cell with a letter inside. Both connection cells and port indicator cells use color codes to relay connection information.

- 2** **Green + number** TS in this port is connected and is not being used for Management.
- 5** **Gray + number** TS in this port is available for connection, but currently has no TS connection.
- 16** **Blue + number** TS in this port has no connections and cannot be TS connected.

### Inside Cells Color Codes

- Gray empty** Cell's port has no current TS connections but can be TS connected.
- Blue empty** Cell's port has no TS connections and cannot be TS connected.
- Yellow + letter** Cell's port has at valid TS connection of type indicated by letter.

## TS Letter Codes

The connection cells use letter codes to describe the type of the connected time slots.

**D** Data

**V** Voice

## Port Name Color Codes



**Green**

All of the port's connectable TS connections are connected.



**Gray**

None of the port's connectable TSs are being used.



**Yellow**

Some of the ports have TS connections. This is valid for the MAIN or SUB ports only.

## Selecting a Port Cell

### ► To select a cell:

- Click on the desired cell.

A selected cell is outlined with a blue border .

## Creating a TS Connection

New TS connections are created only on gray cells (cells with connectable TSs).

### ► To create a new TS connection:

1. Click an empty gray cell.
2. Click <**Voice/Data**>.

## Disconnecting TS Connections

You can disconnect individual TS connections or all TS connections in the selected port.

### ► To disconnect an individual TS connection:

1. Click on a cell representing a TS connection (yellow).
2. Click <**Disconnect**>.

The gray color indicates that the cell's ports have no TS connection but their TSs are connectable. If the cell becomes blue, TS connection is impossible between the two corresponding ports.

## Resetting All TS Connections

### ► To reset all TS connections:

- In the TS Assignment dialog box, click <**Reset All**>.

### Exiting the TS Assignment Window

➤ **To exit the TS Assignment window:**

- Double-click the control box in the upper left corner of the window  
or  
click on the X in the upper right-hand side of the window.

### Reading the E1/T1 Configuration from the Agent

**Note** *Read is only available for TDM ports in Edit View.*

RADview enables you to upload the current Agent configuration to the Edit Configuration mode. The **Read** command is only available when there is communication with the agent.

➤ **To read the current configuration from the agent:**

1. Select a Link or Channel.
2. Select **Configuration > Physical Parameters > Read...**

The following message appears:

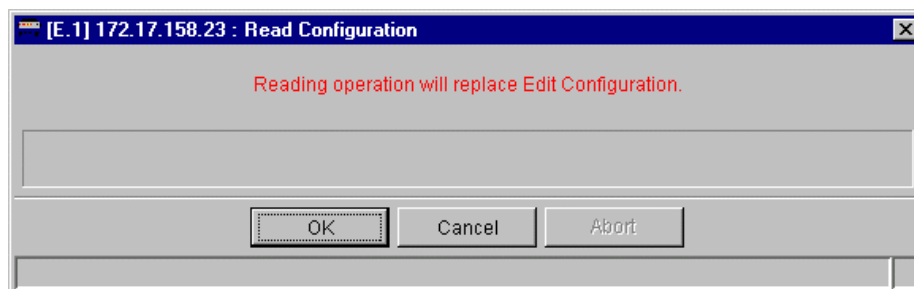


Figure 3-15. Read Configuration


3. Click **<OK>** to confirm the operation.

### Updating the E1/T1 Configuration in the Agent

**Note** *Update is only available for TDM ports in Edit View.*

RADview enables you to download the Edit Configuration to the agent.

➤ **To upload the Edit Configuration to the agent:**

1. Select a Link or Channel.
2. Click the **Edit View** button on the toolbar .
3. Select **Configuration > Physical Parameters > Update...**

The following message appears:

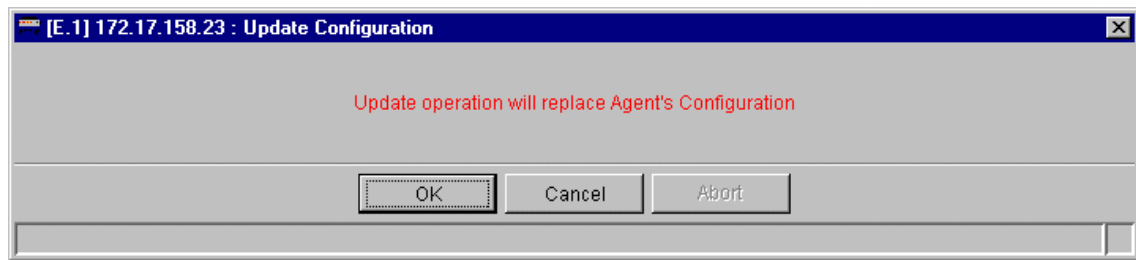


Figure 3-16. Update Configuration

4. Click <**OK**> to update the configuration.
- **To abort the Update operation:**
- Click <**Abort**>.

## Configuring SHDSL Physical Parameters

- **To configure SHDSL physical parameters:**
1. Select a SHDSL Link.
  2. Select **Configuration > Physical Parameters > SHDSL > Parameters...**  
The SHDSL Link Parameters dialog box appears.
  3. Configure the desired parameters.
  4. Click <**Set**>.

Figure 3-17. SHDSL Parameters

Table 3-15. SHDSL Parameters

Parameter	Possible Values / Remarks
Interface	LINK 1
Type	SHDSL
Transmission Mode	<b>Annex A, Annex B</b>
Power Spectral Density (PSD) Mask	<b>Symmetric, Asymmetric</b>
Asymmetric PSD Rate	<b>R1, R2</b>
(only when PSD=Asymmetric)	<p>Selected rate depends on transmission mode specified in Annex A or B of G.991.2:</p> <ul style="list-style-type: none"> <li>Annex A <ul style="list-style-type: none"> <li>R1 = 776 or 784 kbps</li> <li>R2 = 1544 or 1552 kbps</li> </ul> </li> <li>Annex B: <ul style="list-style-type: none"> <li>R1 = 2312 kbps</li> <li>R2 = 2056 kbps</li> </ul> </li> </ul>

Table 3-15. SHDSL Parameters (Cont.)

Parameter	Possible Values / Remarks
Wire Interface	<b>2 Wire, 4 Wire</b>
Rate Mode	<b>Fixed, Adaptive</b>
SNR Startup Margin	Specifies the downstream current condition target SNR margin for a SHDSL line. The SNR margin is the difference between the desired SNR and the actual SNR. Target SNR margin is the desired SNR margin for a unit. -10..10 (Signal to noise ratio)
Line Probe Enabled	Enables/Disables support for Line Probe of the units in a SHDSL line . <b>Enabled:</b> the system performs Line Probing to find the best possible rate. <b>Disabled:</b> rate adaptation phase is skipped, to shorten set up time.
Line Mode	<b>STU-C, STU-R</b>
Loop Attenuation Threshold (dB)	Configures the loop attenuation alarm threshold. <b>Off, 1...127</b> <i>Note:</i> Off setting indicates that threshold crossings are not reported
SNR Margin Threshold (dB)	Configures the SNR margin alarm threshold. <b>Off, 1...15</b> <i>Note:</i> Off setting indicates that threshold crossings are not reported
TS Compaction Mode	Configures how timeslots will be compacted over the SHDSL line. <b>No Compaction, No Mapping, With Mapping, Low TSs Mapping</b>

## Configuring SHDSL Status Parameters

### ► To configure status parameters:

1. Select a SHDSL Link.
2. Select **Configuration > Physical Parameters > SHDSL > Status...**  
The SHDSL Status dialog box appears.

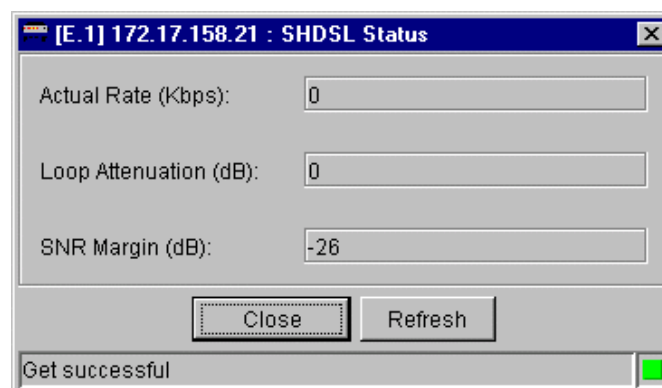


Figure 3-18. SHDSL Status

Table 3-16. SHDSL Status Parameters

Parameter	Possible Values / Remarks
Actual Rate (Kbps)	Contains the actual line rate in this HDSL2/SHDSL span. <b>192...4608</b>
Loop Attenuation (dB)	Current loop attenuation for this endpoint as reported in a Network or Customer Side Performance Status message. <b>-127...128</b>
SNR Margin (dB)	Current SNR margin for this endpoint as reported in a Status Response/SNR message. <b>-127...128</b>

## Configuring Voice Interface Physical Parameters

This section describes how to view and configure voice interface (FXS, FXO and E&M) parameters.

**Note** *Voice interface configuration can be performed in both Agent and Edit Views.*

► **To configure voice parameters:**

1. Select a voice port.
2. Select **Configuration > Physical Parameters...**

The Voice Parameters dialog box appears.

The screenshot shows a dialog box titled "[E.1] 172.17.158.23 : Voice Parameters". It contains the following fields and options:

- Port: VOICE 1
- Interface Type: FXS
- Tx Gain (dBm): 0
- Rx Gain (dBm): -4
- Coding Law: A Law
- Signaling section:
  - Tx On/Off Hook: A Bit
  - Rx On/Off Hook: A Bit
  - Tx M Signal: NA
  - Rx E Signal: NA
  - Tx Ring Detection: NA
  - Default ABCD Bits: 0001
  - Reversed Polarity: Disabled
  - Seize Ack: NA
- Out Of Service: NA
- Remote E&M Wires: NA
- E&M Type: NA
- Buttons: Set, Cancel

Figure 3-19. Voice Parameters Dialog Box

Table 3-17. Voice Parameters

Parameter	Possible Values / Remarks
Port	<b>VOICE 1, VOICE 2, VOICE 3, VOICE 4</b>
Interface Type	<b>FXS, FXO, E&amp;M 4 W, E&amp;M 2 W</b>



Table 3-17. Voice Parameters (Cont.)

Parameter	Possible Values / Remarks
Tx Gain (dBm)	The transmit gain in dBm. <b>-10, -8, -6, -4, -2, 0, 2, 4, 5</b>
Rx Gain (dBm)	The receive gain in dBm. <b>-10, -8, -6, -4, -2, 0, 2, 4, 5</b>
Coding Law	Indicates the Method/Law for decoding/encoding the voice information. <b><u>A Law</u></b> , U Law
<b>Signaling</b>	
Tx On/Off Hook	This object represents 2 Octets, 4 nibbles: <b><u>A bit</u>, A bit Inverted, B bit, B bit inverted, NA (FXO and E&amp;M)</b> where: 0001 = Tx A bit 0010 = Tx A bit inverse 0011 = Tx B bit 0100 = Tx B bit inverse 0000 = NA
Rx On/Off Hook	This object represents 1 Octets, 2 nibbles: <b><u>A bit</u>, A bit Inverted, B bit, B bit inverted, NA(E&amp;M)</b> where: 0001 = Rx A bit 0010 = Rx A bit inverse 0011 = Rx B bit 0100 = Rx B bit inverse 0000 = NA
Tx M Signal	This object represents 2 Octets, 4 nibbles: <b><u>A bit</u>, A bit Inverted, B bit, B bit inverted, NA (FXS and FXO)</b> where: 0001 = Tx A bit 0010 = Tx A bit inverse 0011 = Tx B bit 0100 = Tx B bit inverse 0000 = NA
Rx E Signal	This object represents 1 Octets, 2 nibbles: <b><u>A bit</u>, A bit Inverted, B bit, B bit inverted, NA (FXS and FXO)</b> where: 0001 = Rx A bit 0010 = Rx A bit inverse 0011 = Rx B bit 0100 = Rx B bit inverse 0000 = NA

Table 3-17. Voice Parameters (Cont.)

Parameter	Possible Values / Remarks
Tx Ring Detection	<p>This object represents 2 Octets, 4 nibbles:</p> <p><b><u>A bit</u>, A bit Inverted, B bit, B bit inverted, NA (FXS and E&amp;M)</b></p> <p>where:</p> <p>0001 = Tx A bit</p> <p>0010 = Tx A bit inverse</p> <p>0011 = Tx B bit</p> <p>0100 = Tx B bit inverse</p> <p>0000 = NA</p>
Default ABCD Bits	<p>For all interfaces:</p> <p>When <b>A bit</b> or <b>A bit inverted</b>:</p> <p>For E1 Link:</p> <p><b><u>0001</u></b>, 0010, 0011, 0100, 0101, 0110, 0111</p> <p>For T1 Link:</p> <p><b><u>0000</u></b>, 0101</p> <p>Else,</p> <p>For E1 Link:</p> <p><b><u>0001</u></b>, 0010, 0011, 1000, 1001, 1010, 1011</p> <p>For T1 Link:</p> <p><b><u>0000</u></b>, 1010</p>
Reversed Polarity	<p>Indicates the Signaling Profile of the port.</p> <p><b><u>Enabled</u>, <u>Disabled</u></b></p>
Seize Ack	<p>Indicates whether the device will acknowledge a seize signal (On/Off Hook).</p> <p>When the value is <b>Yes</b> and device receives an on/off hook signal, it will transmit back an on/off hook signal.</p> <p>When the value is set to <b>No</b> and device receives an on/off hook signal, it will NOT transmit back an on/off hook signal.</p> <p><b>Yes, No, NA (FXS and E&amp;M)</b></p>
Out of Service	<b>Forced Idle, Forced Busy, NA (FXS)</b>
Remote E&M Wires	<p>Remote device's wiring.</p> <p><b>2 Wires, 4 Wires, NA (FXS and FXO)</b></p>
E&M Type	<p>Indicates signaling type on the E&amp;M analog side.</p> <p><b>Type 1, Type 2, Type 3, Type 5 (SSDC5), NA (FXS and FXO)</b></p>

### 3.4 Configuring Protocol Parameters

RADview enables you to configure parameters for the different protocols.

Table 3-18. Protocol Options per Interface and Link Types

Interface	Link Type	Protocol
V24	Async	SLIP, CSLIP, PPP
V24	Sync	HDLC, RFC1490, PPP
V35, V11	Sync	HDLC, RFC1490, PPP
ISDN	Sync	PPP
4W, E1/T1, SHDSL	Sync	HDLC, RFC1490, PPP
CHANNEL (N × 64)	Sync	No protocols over CHANNEL

**Note** For IP Routing protocol, see [Protocol Type](#).

#### Configuring Frame Relay Protocol Parameters

➤ **To configure Frame Relay parameters:**

1. Select a Link or Channel.
2. Select a port where the Protocol Type (see [Protocol Type](#)) has been defined as FR.
3. Select **Configuration > Protocol Parameters...**

The FR Parameters dialog box appears.

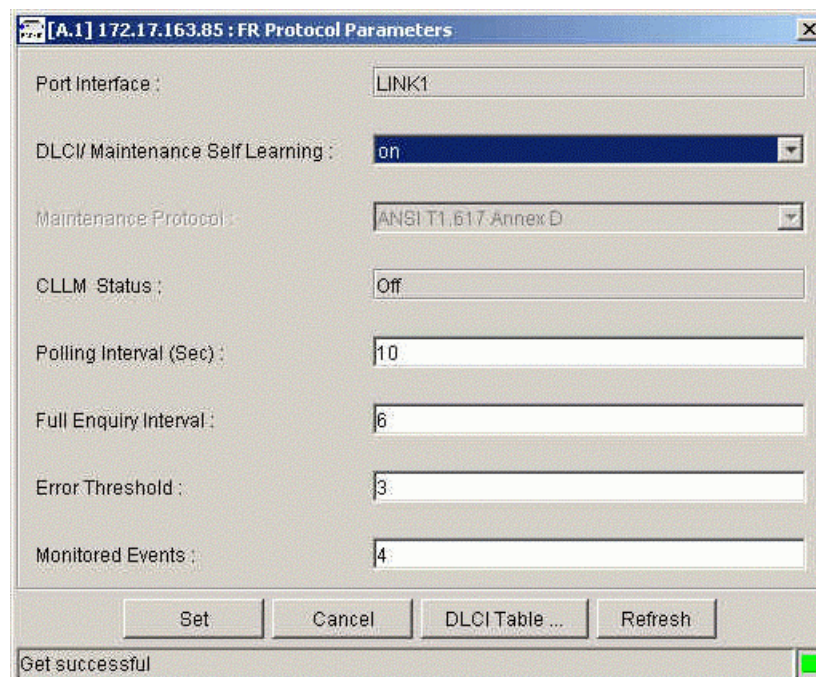


Figure 3-20. FR Parameters

Table 3-19. FR Parameters

Parameter	Possible Values / Remarks
Port Interface	The selected interface.
DLCI / Maintenance Self Learning	Specifies whether device self learns maintenance protocol on FR link and the existing DLCIs and status of the existing DLCIs (Up or Down). <b>On, Off</b> When Off, maintenance protocol and DLCI must be configured manually.
Maintenance Protocol	Specifies maintenance protocol of the FR link. This parameter is available for configuration only when DLCI / Maintenance Self Learning is Off. <b>T1.617/Annex D, Q.933/Annex A, LMI, None</b>
CLLM Status (on/off)	Specifies whether or not CLLM frames used for congestion are supported. <b>Disable, Enable</b>
Polling Interval (Sec)	Specifies number of seconds between transmission of two successive status enquiry frames. <b>5 - 30</b>
Full Enquiry Interval	Specifies number of polling intervals after which a full status request frame is transmitted. <b>1 - 255</b>
Error Threshold	Specifies number of unacknowledged monitored events allowed in a sliding monitored event window before link is declared DOWN. <b>1 - 10</b>
Monitored Events	Specifies number of monitored events (status enquiry frames and full status enquiry frames). <b>1 - 10</b>

## Configuring the DLCI Table

### ► To configure DLCI parameters:

1. Select a Link or Channel.
2. Select **Configuration > Protocol Parameters > DLCI...**  
or  
from the **FR Parameters dialog box** ([Figure 3-20](#)) click **<DLCI Table...>**.  
The DLCI Table dialog box appears.

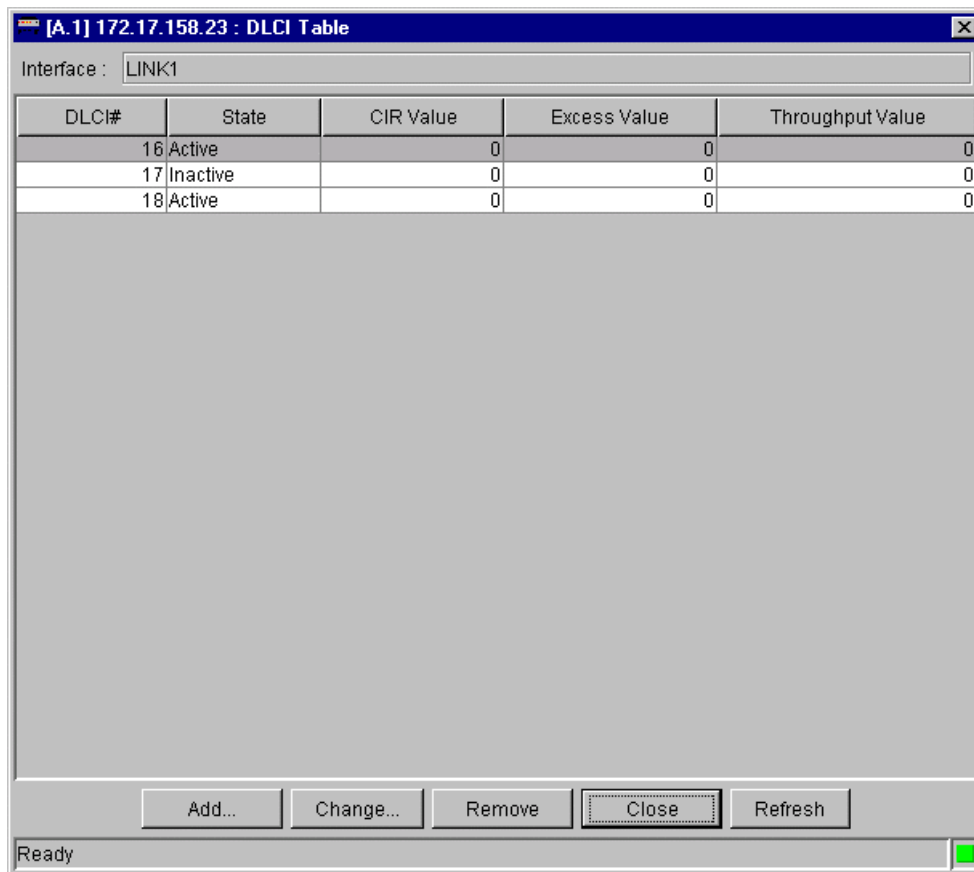


Figure 3-21. DLCI Table

Table 3-20. DLCI Table Parameters

Parameter	Possible Values / Remarks
Interface	The selected interface.
DLCI #	Specifies DLCI number.
State	Specifies state of DLCI. <b>Active, Inactive</b> (for receive/transmit)
CIR Value	Specifies maximum number of data bits that the network guarantees to transfer during the measurement interval.
Excess Value	Specifies maximum number of uncommitted data bits the network attempts to deliver during measurement interval.
Throughput Value	Specifies the average number of data bits pre second transferred by the network. When CIR is defined as one second, Throughput Value should also be one second.

► **To add an entry to the DLCI Table:**

1. In the DLCI Table, click <**Add...**>.  
The Add DLCI dialog box appears.
2. Configure the desired parameters (see [Table 3-20](#)).
3. Click <**Set**>.

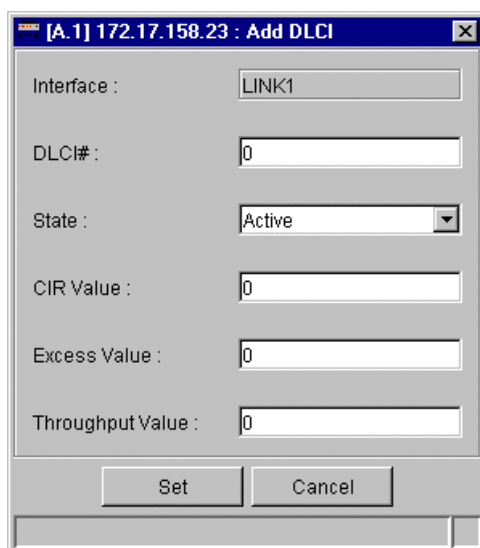


Figure 3-22. Add DLCI

► **To remove an entry from the DLCI Table:**

1. In the DLCI Table, select an entry.
2. Click < **Remove** >.

## Configuring PPP Parameters

► **To configure PPP parameters:**

1. Select a Link or Channel.
2. Select a port where the Protocol Type (see [Protocol Type](#)) has been defined as PPP.
3. Select **Configuration > Protocols > PPP...**

The PPP Protocol Parameters dialog box appears.

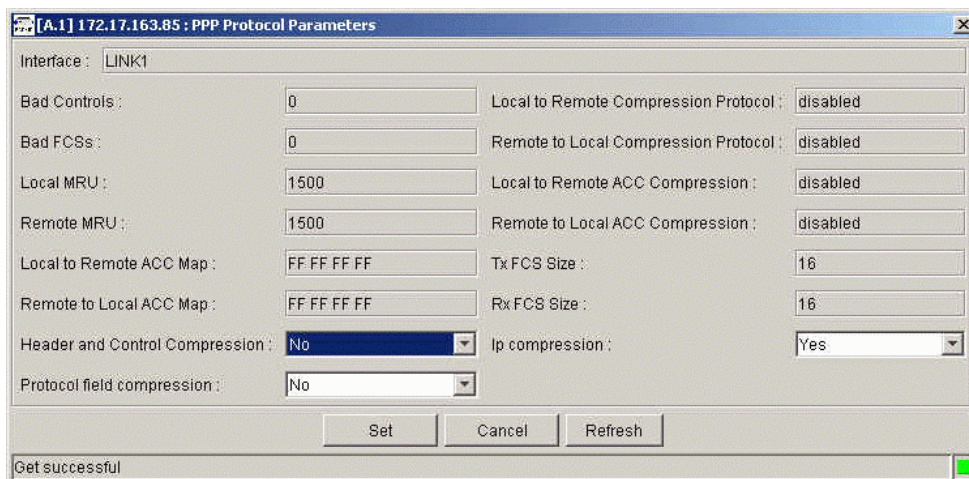


Figure 3-23. PPP Protocol

Table 3-21. PPP Protocol Parameters

Parameter	Possible Values / Remarks
Interface	The selected interface. For ISDN the parameters will appear on two tabs: Channel 1 and Channel 2.
Bad Controls	The number of packets received on this link with an incorrect control field.
Bad FCSs	The number of received packets that have been discarded due to having an incorrect FCS.
Local MRU	<b>1 - 2147483648</b>
Remote MRU	<b>1 - 2147483648</b>
Local to Remote ACC Map	<b>4 octets</b>
Remote to Local ACC Map	<b>4 octets</b>
Local to Remote Compression Protocol	<b>Enabled, Disabled</b>
Remote to Local Compression Protocol	<b>Enabled, Disabled</b>
Local to Remote ACC Compression Protocol	<b>Enabled, Disabled</b>
Remote to Local ACC Compression Protocol	<b>Enabled, Disabled</b>
Tx FCS Size	<b>0 - 128</b>
Rx FCS Size	<b>0 - 128</b>
Header and Control Compression	Used for troubleshooting only. Change the setting only if there is a problem with PPP negotiation. <b>Yes, No</b>
Protocol Field Compression	Used for troubleshooting only. Change the setting only if there is a problem with PPP negotiation. <b>Yes, No</b>
IP Compression	Activates Van Jacobson TCP Header Compression on a specified link. <b>Yes, No</b> <i><b>Note:</b> Since PPP is used for point to point transmissions, both the local and remote devices must have Van Jacobson TCP Header Compression enabled for compression to be performed.</i>

## 3.5 Configuring Network Parameters

RADview enables you to set IP addresses, IP routing protocol and DHCP Relay parameters for the selected interface or DLCI.

### Configuring IP Addresses

► **To set an IP Address:**

1. Select the required interface.
2. Select **Configuration > Network Parameters > IP Addresses...**

The IP Address Table dialog box appears. The IP Address Table dialog box varies depending on the selected link or DLCI. The parameters of the different dialog boxes are provided below.

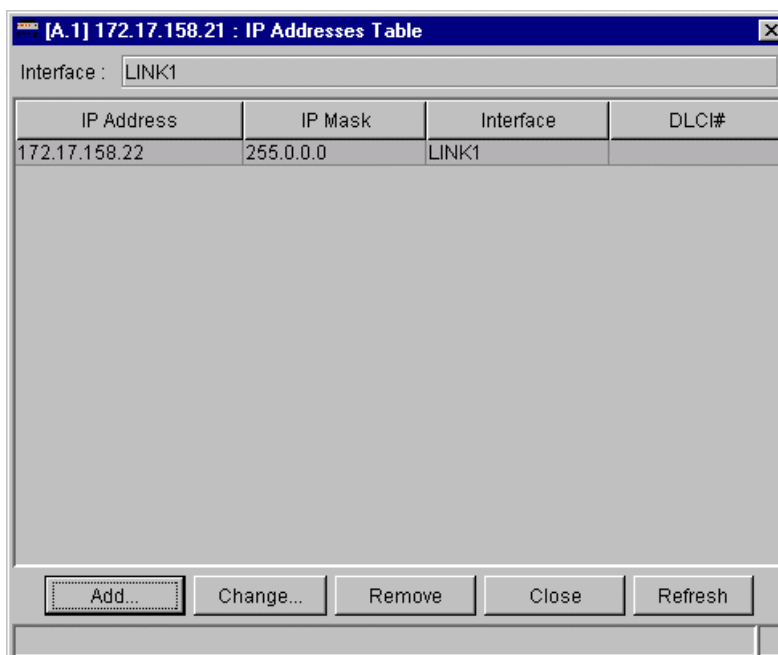


Figure 3-24. IP Address

Table 3-22. IP Address Parameters

Parameter	Possible Values / Remarks
Interface	The selected interface.
	For ISDN there are two tabs: Channel 1 and Channel 2.
IP Address	The WAN/LAN IP Address.
IP Mask	The IP Address mask.
Interface	The selected interface.
DLCI#	Specifies DLCI number.



## Configuring the IP Routing Protocol

Configuring the IP routing protocol varies slightly, depending on the software version you are running. The appropriate one of the following two options will appear in the **Network Parameters** menu:

- IP Routing Protocol
- IP RIP Mode

► **To set IP Routing Protocol:**

1. Select a link in which protocol type is not FR.
2. Select **Configuration > Network Parameters > IP Routing Protocol...**

The IP Routing Protocol dialog box appears.

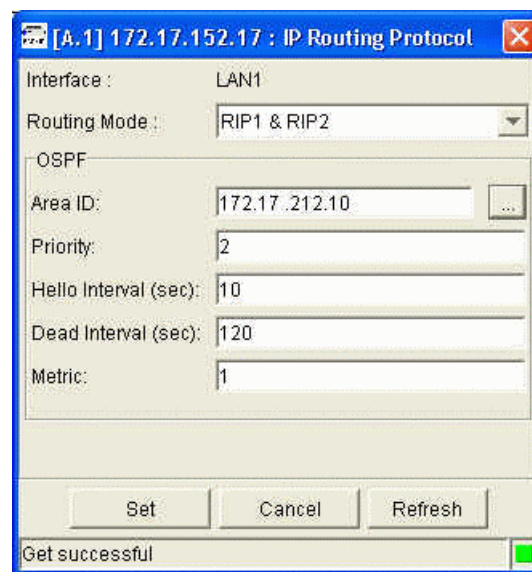


Figure 3-25. IP Routing Protocol Dialog Box

Table 3-23. IP Routing Protocol Parameters

Parameter	Possible Values / Remarks
Interface	The selected interface.
	For ISDN the parameters below will appear on two tabs: Channel 1 and Channel 2.
Routing Mode	<p><b>RIP 1:</b> Send and receive routing information about IP nets only</p> <p><b>RIP 2:</b> Send and receive full routing information including subnets</p> <p><b>RIP 1 &amp; RIP 2:</b> Send and receive both RIP 1 (routing information about IP nets only) and RIP 2 (full routing information including subnets)</p> <p><b>OSPF:</b> Routing is determined by the OSPF protocol</p> <p><b>No Routing Protocol</b></p>

Table 3-23. IP Routing Protocol Parameters (Cont.)

Parameter	Possible Values / Remarks
<b>OSPF</b>	
Area ID	The IP address that identifies the OSPF area.
[...]	Opens the Select Area dialog box listing the existing OSPF areas and the behavior type of each area. To select an OSPF area, click<...>. Select the desired area from the listing and click <OK>.
Priority	
Hello Interval	The interval (in seconds) at which a hello message is transmitted in the area.
Dead Interval	The interval (in seconds) after which, if no hello message is transmitted from a unit, it will be considered "dead".
Metric	

## Configuring the IP RIP Mode

### ► To set IP RIP Mode:

1. Select a link in which protocol type is not FR.
2. Select **Configuration > Network Parameters > IP RIP...**

The IP RIP Mode dialog box appears.

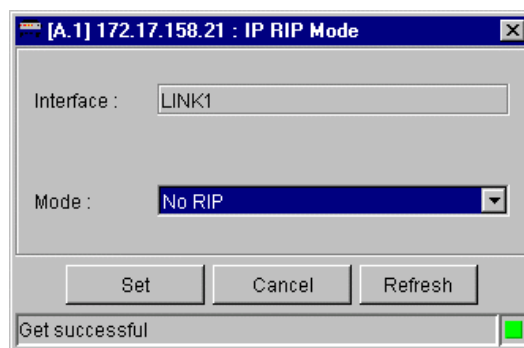


Figure 3-26. IP RIP Mode Dialog Box

Table 3-24. IP RIP Mode Parameters

Parameter	Possible Values / Remarks
Interface	The selected interface.
	For ISDN the parameters below will appear on two tabs: Channel 1 and Channel 2.
Mode	<b>RIP 1:</b> Send and receive routing information about IP nets only <b>RIP 2:</b> Send and receive full routing information including subnets <b>RIP 1 &amp; RIP 2:</b> Send and receive both RIP 1 (routing information about IP nets only) and RIP 2 (full routing information including subnets) <b>No RIP</b>

## Configuring DHCP Relay

### ► To set DHCP Relay:

1. Select the desired link.
2. Select **Configuration > Network Parameters > DHCP Relay...**

The DHCP Relay Parameters dialog box appears.

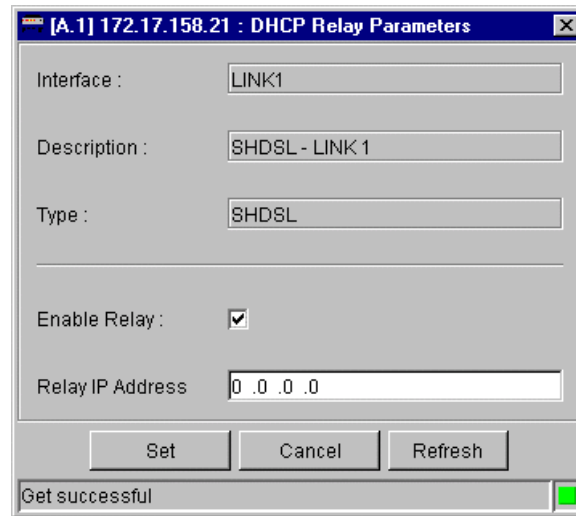


Figure 3-27. DHCP Relay Parameters

Table 3-25. DHCP Relay Parameters


Parameter	Possible Values / Remarks
Interface	Link 1, Link 2, Link 3
Description	String containing information about the interface.
Type	<b>DS1, MODEM, Frame Relay, PPP, SHDSL</b>
Enable Relay	<b>Enabled, Disabled</b>
Relay IP Address	0.0.0.0, 1.0.0.0...223.255.255.255

## 3.6 Resetting the Link

### ► To reset the link:

1. Select a Link or Channel.
2. Select **Configuration > Reset...**

or

click the Reset icon on the toolbar .

The following message appears: "RESETTING LINK. Operation may disrupt network data."

3. Click **<OK>** to confirm Reset.

### 3.7 Performing Diagnostic Tests

RADview enables you to run diagnostic tests for: E1/T1 Link, E1/T1 Sublink, SHDSL, SUB1/ LINK2, SUB 2, SUB 3, Voice Port.

**Note** When configuring TDM (Voice) parameters a password is required.

➤ **To run diagnostics tests:**

1. Select a Link or Channel.
2. Select **Diagnostics > Test...**

The Testing dialog box appears.

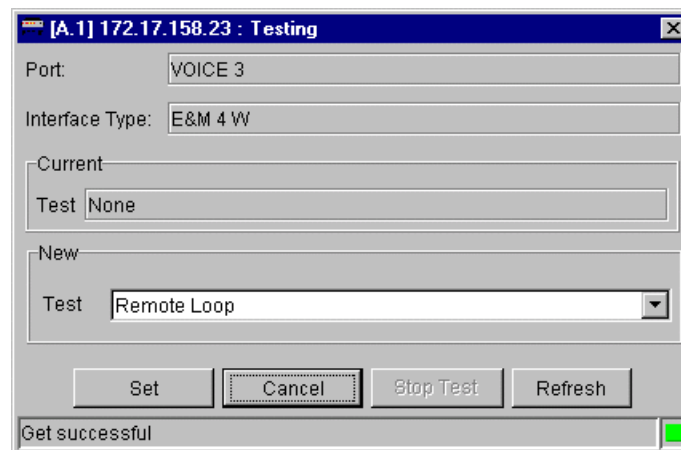


Figure 3-28. Testing

Table 3-26. Testing Parameters

Parameter	Possible Values / Remarks
Port	The selected port. <b>Voice 1, Voice 2, Voice 3, Voice 4</b>
Interface Type	The interface type of selected port. <b>FXS, FX0, E&amp;M 4 W, E&amp;M 2W</b>
Current Test	The currently running test.
New Test	<b>Remote Digital Loopback (T1 only), Remote Analog Loopback, Local Analog Loopback</b>
[Stop Test]	Click < <b>Stop Test</b> > to stop a currently running test.
[Set]	To run a different test, ensure that no test is currently running (click <b>Stop Test</b> ). Select the test to be run from the New Test list box and click < <b>Set</b> >.

➤ **To run a different test:**

1. Click <**Stop Test**> to stop any currently running test.
2. Select a new diagnostic test.
3. Click <**Set**>.

---

# Chapter 4

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## Fault Management

This chapter discusses how to manage faults for the FCD-IP system.

Managing faults includes the following tasks:


- Displaying Sanity Check Errors (E1/T1 Link)
- Displaying SHDSL Alarms.

---

### 4.1 Edit and Agent Views

**Note** Certain TDM ports can be displayed in both Edit and Agent Views. Configuration is performed in the Edit mode. In Agent View, the parameters are Read-Only.

➤ **To switch between Edit and Agent views:**

1. Select the appropriate Link.
2. Switch to Edit View by doing one of the following:
  - Click the Edit/Agent View button on the toolbar .

or

- Select **Window > Edit View/Agent View** to switch to Edit/Agent View.


---

### 4.2 Displaying Sanity Check Errors (E1/T1 Link)

RADview enables you to display the Sanity Check Errors List.

**Note** *Sanity Check Errors is available only for E1/T1 interfaces (Edit View).*

➤ **To display the sanity check errors list:**

1. Select a Link or Channel.
2. Click the **Edit View** button on the toolbar .
3. Select **Fault > Sanity Check Errors...**

The system performs a sanity check.

If there are no errors, the following message appears “NO SANITY ERRORS”.

If there are errors or warnings, the Sanity Check Errors List appears ([Figure 4-1](#)).

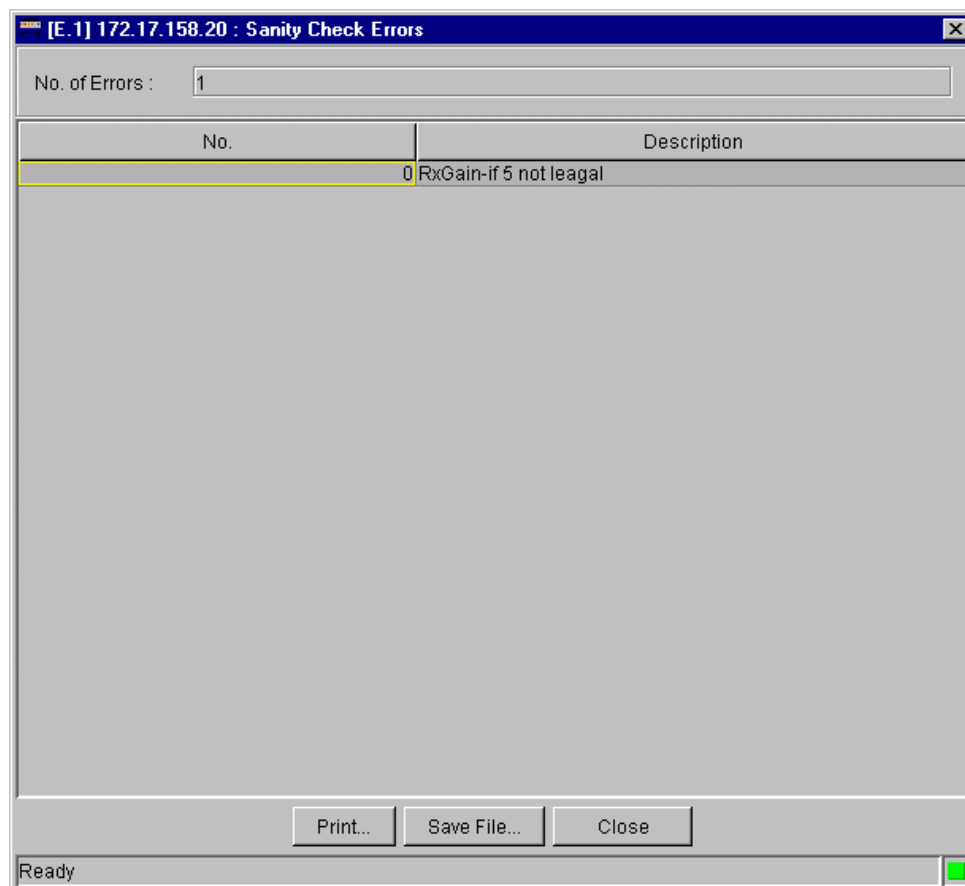


Figure 4-1. Sanity Check Errors List

---

### 4.3 Displaying SHDSL Alarms

► To view SHDSL alarms:

1. Select an SHDSL Link.
2. Select **Fault > SHDSL > Alarms...**

The SHDSL alarms dialog box appears (*Figure 4-2*).

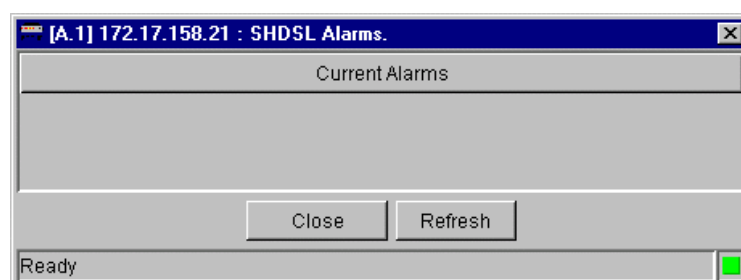


Figure 4-2. SHDSL Alarms

# Chapter 5

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## Performance

This chapter discusses how to monitor the performance of the FCD-IP system.

Performance monitoring includes the following tasks:

- Setting the Polling Interval
- Performing Diagnostic Tests
- Displaying E1/T1 Statistics
- Displaying E1 Over SHDSL Statistics
- Displaying Ethernet LAN Statistics.


---

### 5.1 Edit and Agent Views

**Note** *Certain TDM ports can be displayed in both Edit and Agent Views. Configuration is performed in the Edit mode. In Agent View, the parameters are Read-Only.*

---

➤ **To switch between Edit and Agent views:**

1. Select the appropriate Link.
2. Switch to Edit View by doing one of the following:
  - Click the Edit/Agent View button on the toolbar .

or

- Select **Window > Edit View/Agent View** to switch to Edit/Agent View.

## 5.2 Setting the Polling Interval

RADview enables you to set the current statistics polling interval to automate FCD-IP statistics updates, per assigned elapsed time intervals.

➤ **To set the polling interval:**

1. Select a Link or Channel.
2. Select **Statistics > Physical Layer > Polling Interval...**  
or  
Select **Statistics > Physical Layer > SHDSL > Polling Interval...**  
The Polling Interval dialog box appears (*Figure 5-1*).
3. Enter the polling interval in seconds and check the **Polling Enable** checkbox.
4. Click **<Set>**.

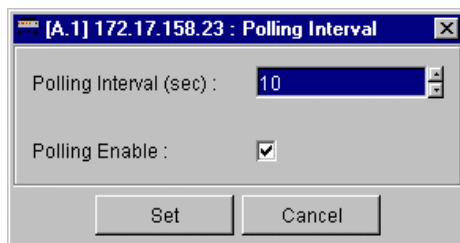


Figure 5-1. Polling Interval

## 5.3 Performing Diagnostic Tests

RADview enables you to run diagnostic tests.

**Note** When configuring TDM (E1/T1) parameters a password is required.

➤ **To run diagnostics tests:**

1. Select a Link or Channel.
2. Select **Diagnostics > Test...**

The Testing dialog box appears.

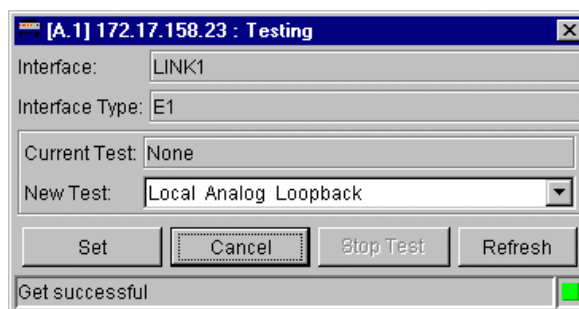


Figure 5-2. Testing



Table 5-1. Testing Parameters – E1/T1

Parameter	Possible Values / Remarks
Interface	The selected port. <b>Link1, Link2, Link3, SUB1/Link2, SUB 2, SUB 3,</b>
Interface Type	The interface type of the selected port. <b>E1/T1</b>
Current Test	The currently running test.
New Test	<b>Remote Digital Loopback (T1 only), Remote Analog Loopback, Local Analog Loopback</b>
[Stop Test]	Click <b>&lt;Stop Test&gt;</b> to stop a currently running test.
[Set]	To run a different test, ensure that no test is currently running (click Stop Test). Select the test to be run from the New Test list box and click <b>&lt;Set&gt;</b> .

## 5.4 Displaying E1/T1 Statistics

The following types of statistics are available for E1/T1 links:

- Packets Data Statistics
- Packets Graph
- Physical Layer Statistics

### Packets Data Statistics

➤ **To display link statistics:**

1. Select a Link or Channel.
2. Select **Statistics >Packets Data Table...**

The Link Statistics dialog box appears (*Figure 5-3*).

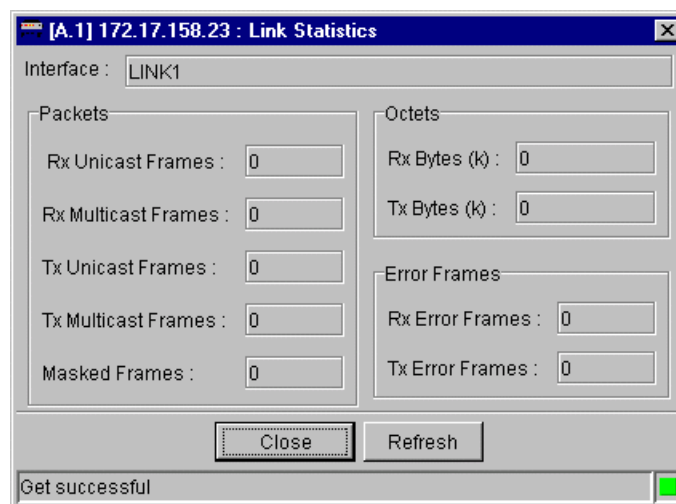


Figure 5-3. Link Statistics

Table 5-2. Link Statistic Parameters

Parameter	Possible Values / Remarks
Interface	The selected interface.
<b>Packets</b>	
Rx Unicast Frames	The number of subnetwork Unicast packets received from a higher layer protocol.
Rx Multicast Frames	The number of subnetwork Multicast packets received from a higher layer protocol.
Tx Unicast Frames	The number of subnetwork Unicast packets transmitted to a higher layer protocol.
Tx Multicast Frames	The number of subnetwork Multicast packets transmitted to a higher layer protocol.
Masked frames	The number of masked frames received on this physical link.
<b>Octets</b>	
Rx Bytes (k)	The number of octets received on this interface including framing characters.
Tx Bytes (k)	The number of octets transmitted on this interface including framing characters.
<b>Error Frames</b>	
RxError Frames	Number of errored packets received on this physical link.
TxError Frames	Number of errored packets transmitted by this physical link.

## Packets Graph Statistics

### ➤ To display link packet statistics in a graph:

1. Select a Link or Channel.
2. Select **Statistics >Packets Graph > Packets...**

The Link Packets graph appears (Figure 5-4).

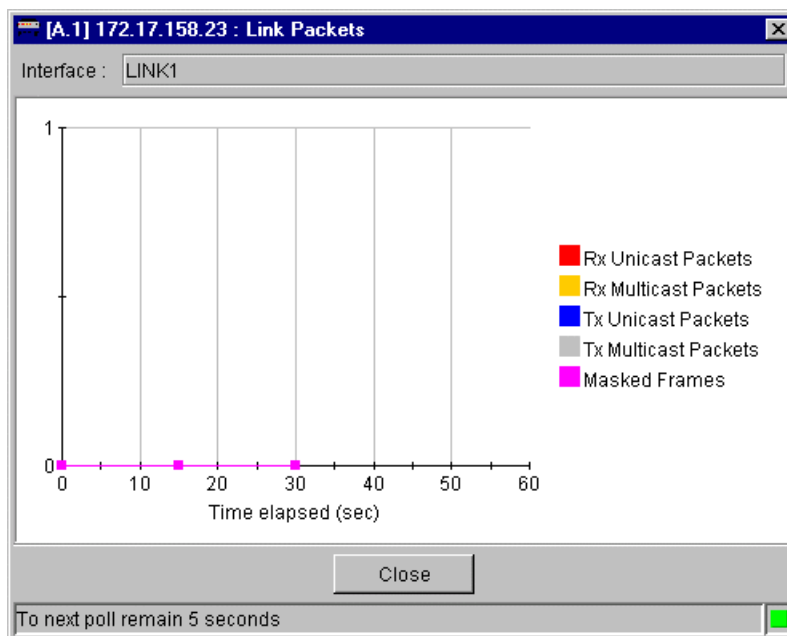


Figure 5-4. Link Packets

► **To display link octet statistics in a graph:**

1. Select a Link or Channel.
2. Select **Statistics >Packets Graph > Octets...**

The Link Octets graph appears (*Figure 5-5*).

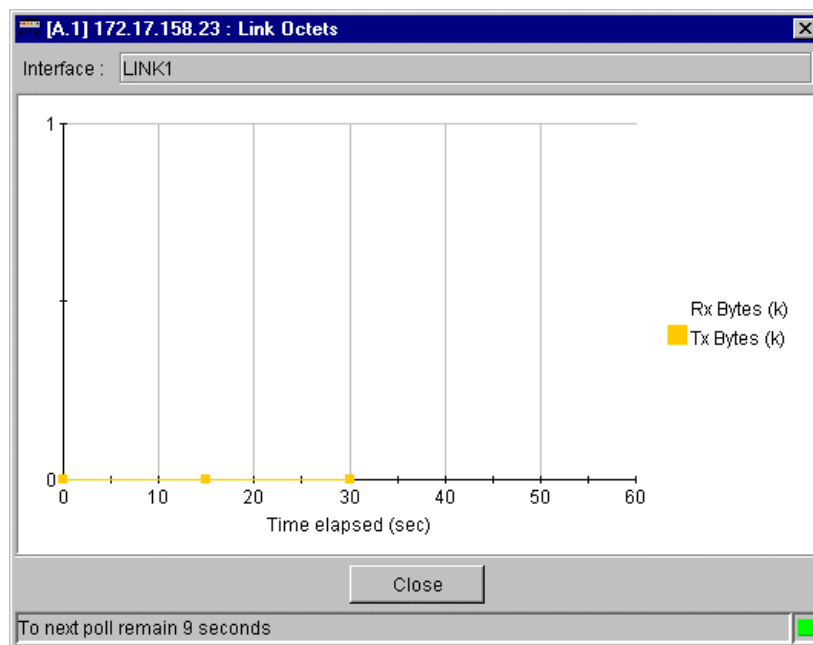


Figure 5-5. Link Octets

► **To display link error frame statistics in a graph:**

1. Select a Link or Channel.
2. Select **Statistics >Packets Graph > Error Frames...**

The Link Error Frames graph appears (*Figure 5-6*).

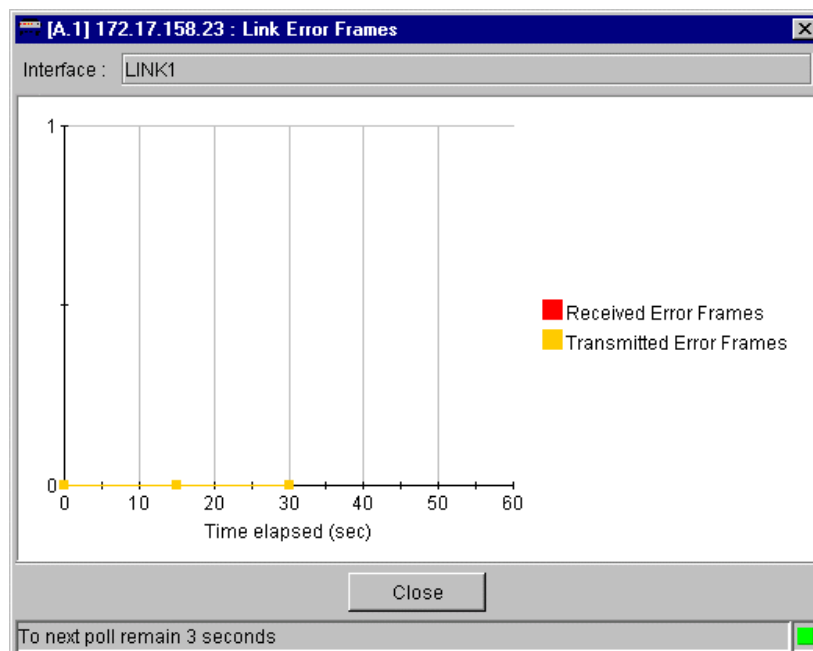


Figure 5-6. Link Error Frames

## Physical Layer Statistics

RADview enables you to display link statistics about the physical layer of the selected interface.

► **To display physical layer statistics:**

1. Select a Link or Channel.
2. Select **Statistics > Physical Layer > Current Interval > Table...**

The E1 Link Statistics dialog box appears (*Figure 5-7*).

Figure 5-7. E1 Link Statistics

Table 5-3. Link Statistic Parameters

Parameter	Possible Values / Remarks
Interface	The selected interface.
Type	<b>E1, T1</b>
<b>Current Data</b>	Each parameter displays the number of seconds for the particular type of error encountered by the interface during the current 15-minute interval.
Time Elapsed (sec)	Amount of time that has passed since the beginning of the current 15-minute interval.
LCV	The number of Line Code Violations seconds.
ES	The number of Errored Seconds (containing one or more CRC error events, one or more OOF events, or one or more controlled slip events).
SES	The number of Severely Errored Seconds (with 832 or more CRC error events, or one or more OOF events).
UAS	The number of Unavailable seconds (in which a failed signal state exists).
CSS	The current Slip Second Counter (second with one or more controlled slip events).
BES	The number of Bursty Error Seconds (with 2 to 831 CRC error events).

► **To display the physical layer statistics in graph form:**

1. Select a Link or Channel.
2. Select **Statistics > Physical Layer > Current Interval > Graph...**

The Current Graph dialog box appears (*Figure 5-8*).

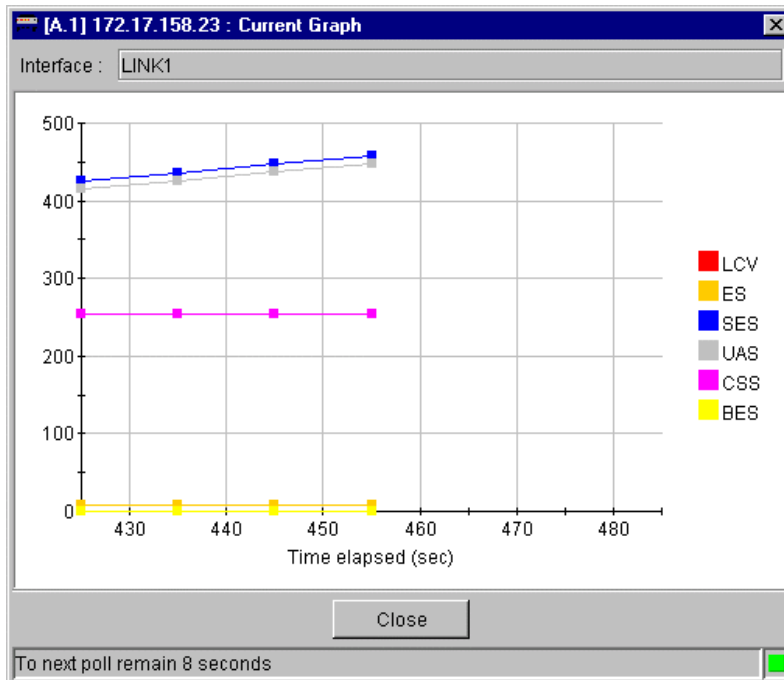


Figure 5-8. Current Graph Statistics

► **To display interval statistics for the physical layer:**

1. Select a Link or Channel.
2. Select **Statistics > Physical Layer > Intervals Data > Table...**

The Errors Statistics Intervals dialog box appears (*Figure 5-9*).

Interval No	LCV	ES	SES	UAS	CSS	BES
1	0	0	900	890	255	0
2	0	7	900	890	255	0
3	0	7	900	890	255	0
4	0	0	900	890	255	0

Figure 5-9. Errors Statistics Intervals

- **To display the next 20 entries in the table:**
  - Click <Next>.
- **To display statistics starting at a specific interval:**
  1. Select the desired interval from the **Starting from Interval** list box (upper right hand corner of Error Statistics Intervals dialog box).
  2. Click <Start From...>.
- **To display the table data in a graph:**
  1. Select a Link or Channel.
  2. Select **Statistics > Physical Layer > Intervals Data > Graph...**

The Intervals Graph dialog box appears (*Figure 5-10*).

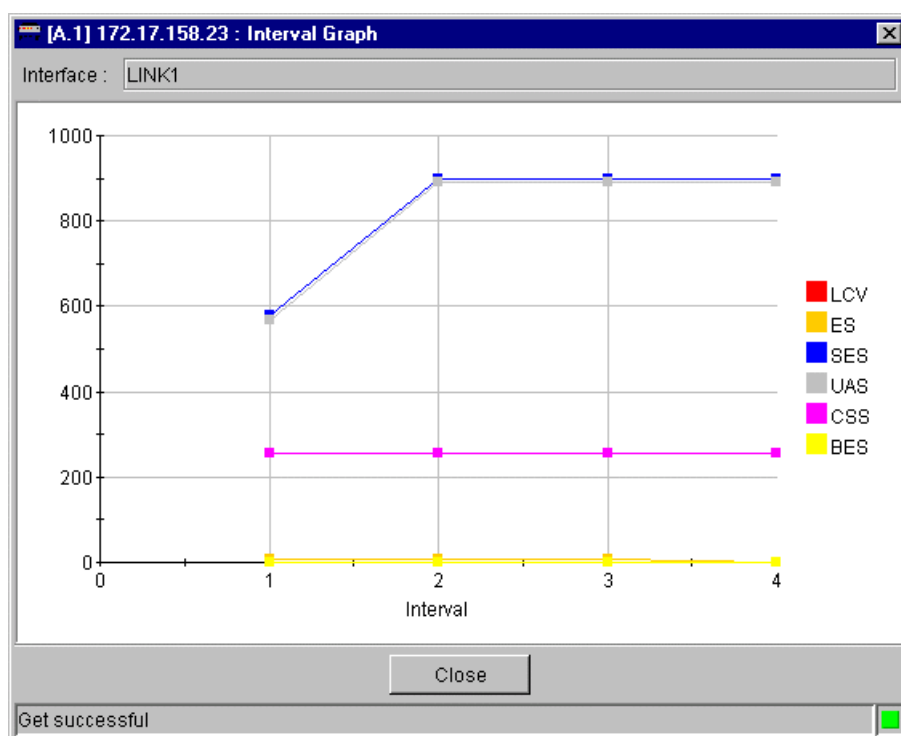


Figure 5-10. Intervals Graph

## Protocol Layer Statistics

RADview enables you to display statistics about the protocol layer of the selected interface.

**Note** Protocol Layer statistics are available only for FR ports.

► **To display FR Error statistics:**

1. Select a FR port.
2. Select **Statistics > Protocol Layer...**

The FR Error Statistics dialog box appears (*Figure 5-11*).

[A.1] 172.17.158.23 : FR Error Statistics

Interface : LINK1

Type : unknownError

Time : 0 days 00:00:00

Faults : 0

Fault Time : 0 days 00:00:00

Data :

Close DLCI ... Refresh

Get successful

Figure 5-11. FR Error Statistics

Table 5-4. FR Error Statistics Parameters

Parameter	Possible Values / Remarks
Interface	The selected interface.
Type	Displays the type of error.
Time	The system up time when error was detected.
Faults	The number of faults that have occurred.
Fault Time	The time when the error was detected.
Data	Provides information about the different faults.
[DLCI...]	Click < <b>DLCI</b> > to view DLCI Statistics dialog box ( <a href="#">Figure 5-12</a> ).

► **To display DLCI statistics:**

- From the FR Error Statistics dialog box ([Figure 5-11](#)), click <**DLCI...**>.

The DLCI Statistics dialog box appears.

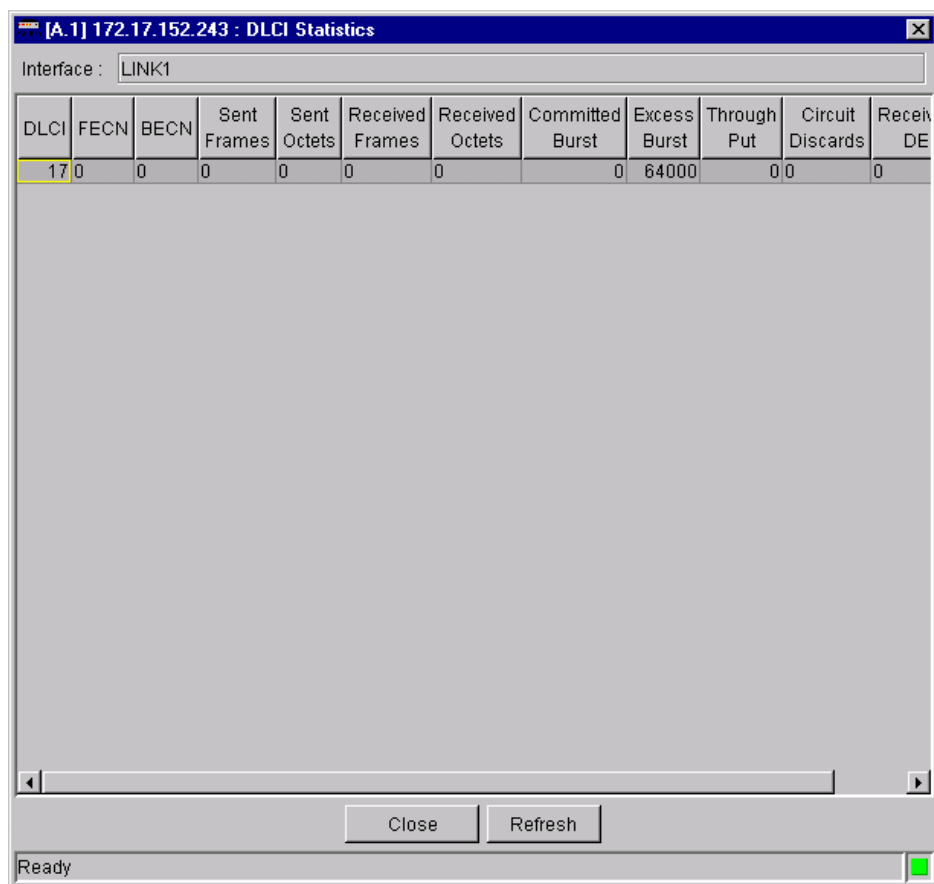


Figure 5-12. DLCI Statistics



Table 5-5. DLCI Statistics Parameters

Parameter	Possible Values / Remarks
Interface	The selected interface.
DLCI	The DLCI value.
FECN	The number of frames received from the network indicating forward congestion since the virtual circuit was created.
BECN	The number of frames received from the network indicating backward congestion since the virtual circuit was created.
Sent Frames	The number of frames sent from this virtual circuit since it was created.
Sent Octets	The number of octets sent from this virtual circuit since it was created.
Received Frames	The number of frames received over this virtual circuit since it was created.
Received Octets	The number of octets received over this virtual circuit since it was created.
Committed Burst	The maximum amount of data, in bits, that the network agrees to transfer under normal conditions, during the measurement interval.
Excess Burst	The maximum amount of uncommitted data bits that the network will attempt to deliver over the measurement interval.
Through Put	The average number of 'Frame Relay Information Field' bits transferred per second across a user network interface in one direction, measured over the measurement interval.
Circuit Discards	The number of inbound frames dropped because of format errors, or because the VC is inactive.
Received DE	The number of frames received from the network indicating that they were eligible for discard since the virtual circuit was created.
Sent DE	The number of frames sent to the network indicating that they were eligible for discard since the virtual circuit was created.

## 5.5 Displaying E1 Over SHDSL Statistics

### Physical Layer Statistics

➤ To display physical layer statistics:

1. Select a Link or Channel.
2. Select **Statistics > SHDSL > Current > 15 min Data...**

The 15 min, Current Data box appears ([Figure 5-13](#)).

Figure 5-13. 15 min. Current Data

Table 5-6. 15 min, Current Data Parameters

Parameter	Possible Values / Remarks
Index	Link 1
Type	<b>SHDSL</b>
Time Elapsed (sec)	The amount of time that has passed since the beginning of the current 15-minute interval. <b>0..900</b>
ES	The number of Errored Seconds (containing one or more CRC error events, one or more OOF events, or one or more controlled slip events). <b>0..900</b>
SES	The number of Severely Errored Seconds (with 832 or more CRC error events, or one or more OOF events). <b>0..900</b>
CRC Anomalies	Integer
LOSW	<b>0..900</b>
UAS	The number of Unavailable seconds (in which a failed signal state exists). <b>0..900</b>

► To display the physical layer statistics in graph form:

1. Select a Link or Channel.
2. Select **Statistics > SHDSL > Current > 15 min Graph...**

The 15 min, Current Graph box appears (*Figure 5-13*).

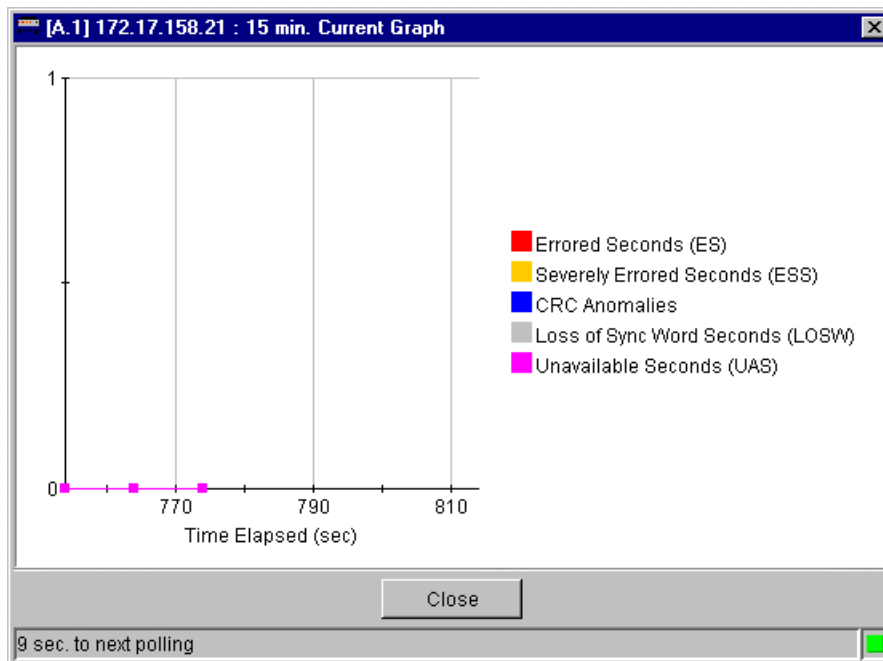


Figure 5-14. 15 min. Current Graph

► To display interval statistics for one day:

1. Select a Link or Channel.
2. Select **Statistics > SHDSL > Current > One Day Data...**

The 1 Day Current Data dialog box appears (*Figure 5-15*).

Figure 5-15. 1-Day Current Data

► **To display interval statistics for the physical layer:**

1. Select a Link or Channel.
2. Select **Statistics > SHDSL > Intervals > 15 min. Data...**

The 15 min. Intervals Data dialog box appears (*Figure 5-16*).

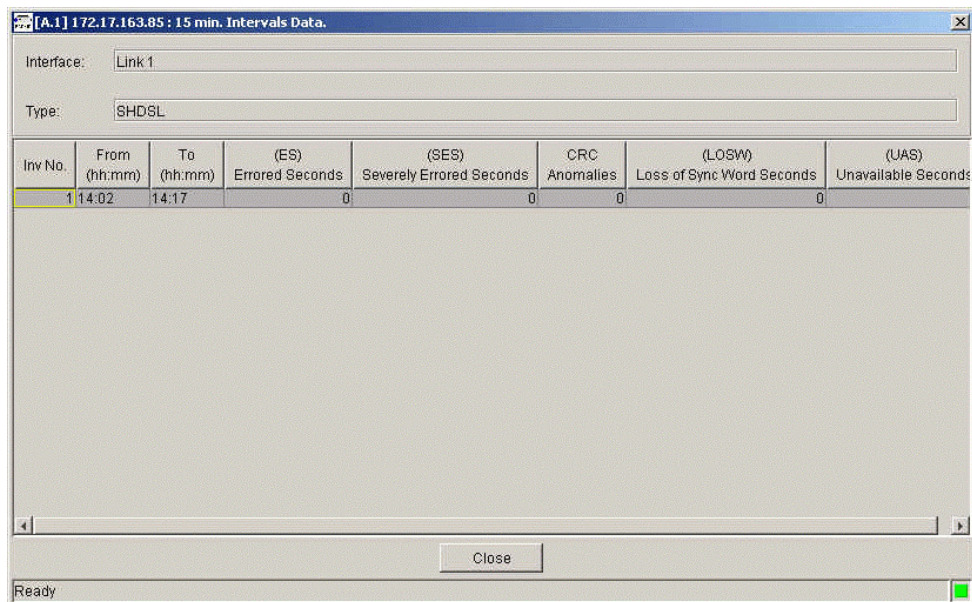


Figure 5-16. 15 min. Intervals Data

► **To display the table data in a graph:**

1. Select a Link or Channel.
2. Select **Statistics > SHDSL > Intervals > 15 min. Graph...**

The 15 min. Intervals Graph dialog box appears (*Figure 5-17*).

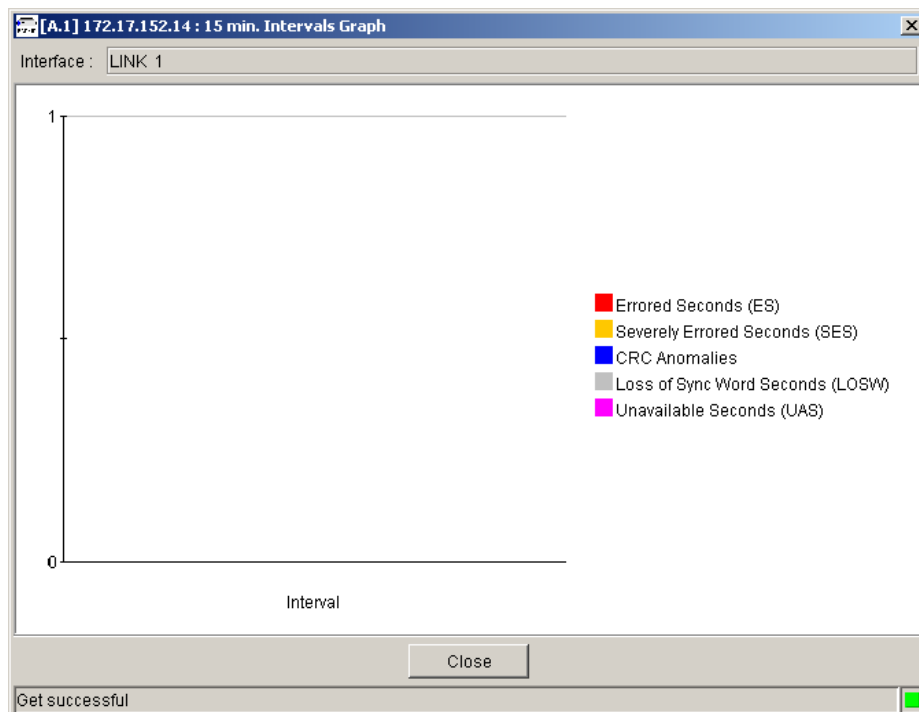


Figure 5-17. 15 min. Intervals Graph

## 5.6 Displaying Ethernet LAN Statistics

RADview enables you to display general statistics as well as error statistics for the Ethernet LAN interface.

► **To display general statistics for the LAN:**

1. Select the Ethernet LAN.
2. Select **Statistics > Table > LAN General...**

The LAN General dialog box appears (*Figure 5-18*).



Figure 5-18. LAN General

Table 5-7. LAN General

Parameter	Possible Values / Remarks
Interface	The selected interface.
<b>Packets</b>	
RX Unicast Packets	The number of subnetwork Unicast packets received from a higher layer protocol.
RX Multicast Packets	The number of subnetwork Multicast packets received from a higher layer protocol.
TX Unicast Packets	The number of subnetwork Unicast packets transmitted to a higher layer protocol.
<b>Octets</b>	
RX Bytes (k)	The number of octets received on this interface including framing characters.
TX Bytes (k)	The number of octets transmitted on this interface including framing characters.

► **To display error statistics for the LAN:**

1. Select the Ethernet LAN.
2. Select **Statistics > Table > Errors...**

The LAN Errors Statistics dialog box appears ([Figure 5-19](#)).

Figure 5-19. LAN Errors Statistics

Table 5-8. LAN Errors Statistics Parameters

Parameter	Possible Values / Remarks
Interface	The selected interface.
<b>Error Frames</b>	
Received Error Frames	The number of error frames received.
Transmitted Error Frames	The number of error frames transmitted.
Frame Too Long	The number of frames that were too long.
<b>FCS &amp; Test Errors</b>	
FCS Errors	The number of frames received with CRC errors.
Alignment Errors	The number of frames received with alignment errors.
SQE Test Errors	The number of times the SQE test error is generated by the PLS sublayer for the selected interface.

Table 5-8. LAN Errors Statistics Parameters (Cont.)

Parameter	Possible Values / Remarks
<b>Tx &amp; Rx Errors</b>	
Internal Mac Transmit Errors	The number of frames for which transmission to selected interface fails due to internat MAC sublayer transmitt error.
Internal Mac Receive Errors	The number of frames for which transmission to selected interface fails due to internat MAC sublayer receive error.
Deferred Transmissions	The number of frames for which first transmission attemp on selected interface delayed due to the media bing busy.
Carrier Sense Errors	The number of time that carrier sense condition was lost or never asserted when attempting to trasmit frames on selected interface.
<b>Collisions</b>	
Single Collision Frames	The number of successfully transmitted frames for which transmission is inhibited by exactly one collision.
Multiple Collision Frames	The number of successfully transmitted frames for which transmission is inhibited by more than one collision.
Late Collisions	The number of times that a collision is detected on selected interface later than 512 bit-times into the transmission of a packet.
Excessive Collisions	The number of frames detected on selected interface that failed due to excessive collisions.

The following group statistics can also be displayed in a graph:

- Packets
- Octets
- Error Frames
- Tx & Rx Errors
- FCS & Test Errors
- Collisions.

➤ **To display the statistics for the Packets group in a graph:**

- Select **Statistics > Graph > Packets...**

The LAN Packets dialog box appears ([Figure 5-20](#)).

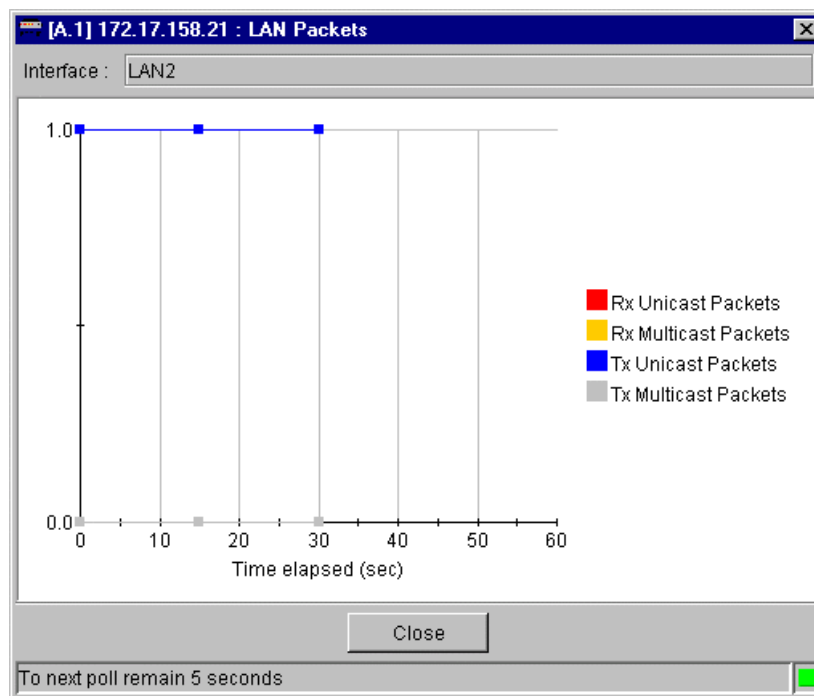


Figure 5-20. LAN Packets

► To display the statistics for the Octets group in a graph:

- Select **Statistics > Graph > Octets...**

The LAN Octets dialog box appears (Figure 5-21).

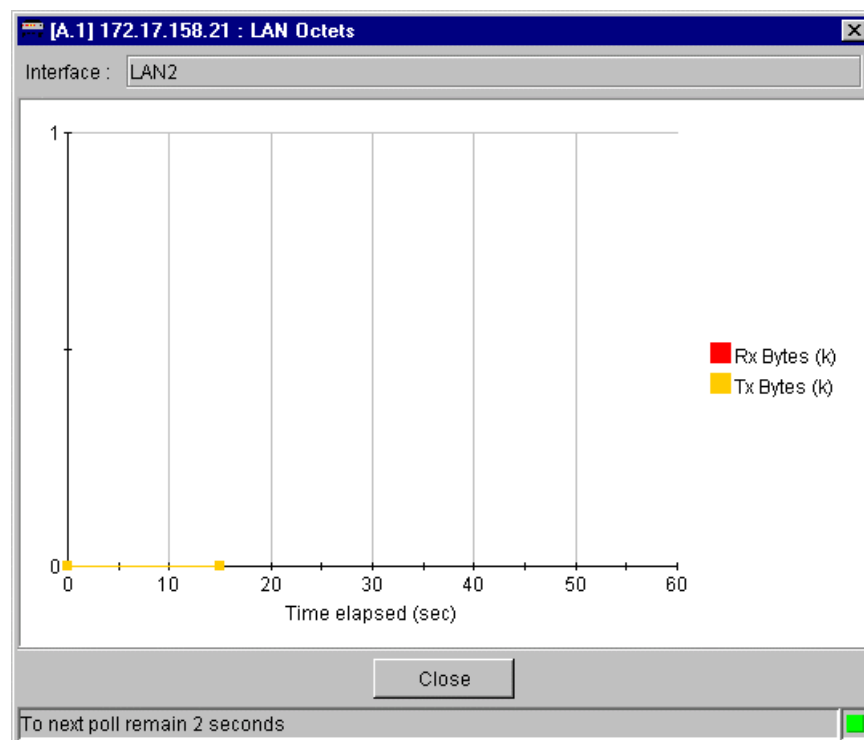


Figure 5-21. LAN Octets



➤ To display the statistics for the Frame Errors group in a graph:

- Select **Statistics > Graph > Frames Errors...**

The ETH Error Frames dialog box appears (*Figure 5-22*).

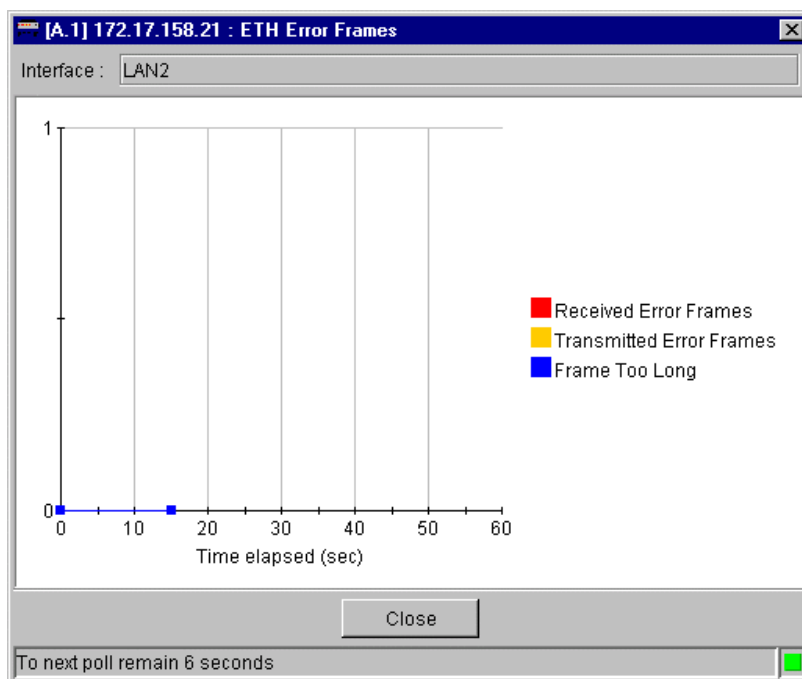


Figure 5-22. ETH Error Frames

➤ To display the statistics for the Tx & Rx Errors group in a graph:

- Select **Statistics > Graph > Tx & Rx Errors...**

The ETH Tx & Rx Errors dialog box appears (*Figure 5-23*).

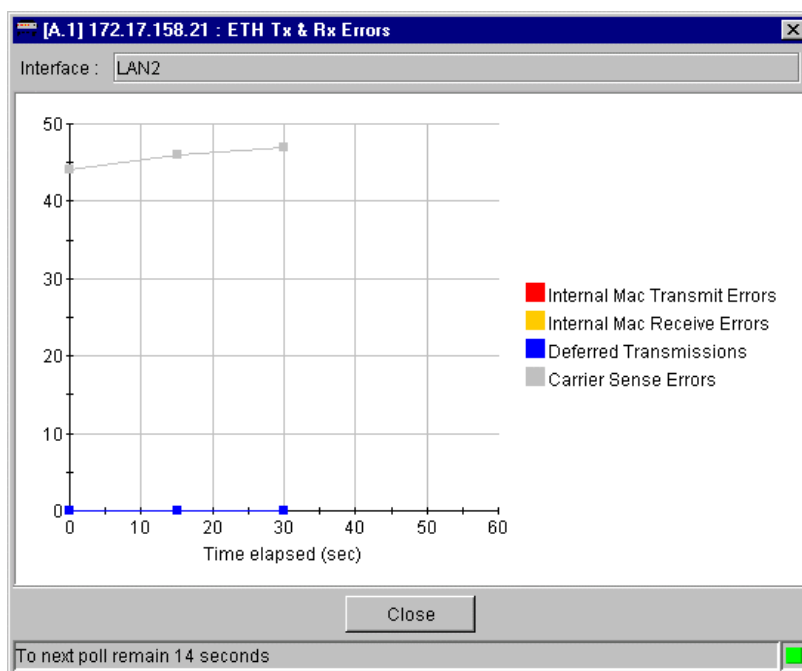


Figure 5-23. ETH Tx & Rx Errors

➤ To display the statistics for the FCS & Test Errors group in a graph:

- Select **Statistics >Graph > FCS & Test Errors...**

The ETH FCS & Test Errors dialog box appears (*Figure 5-24*).

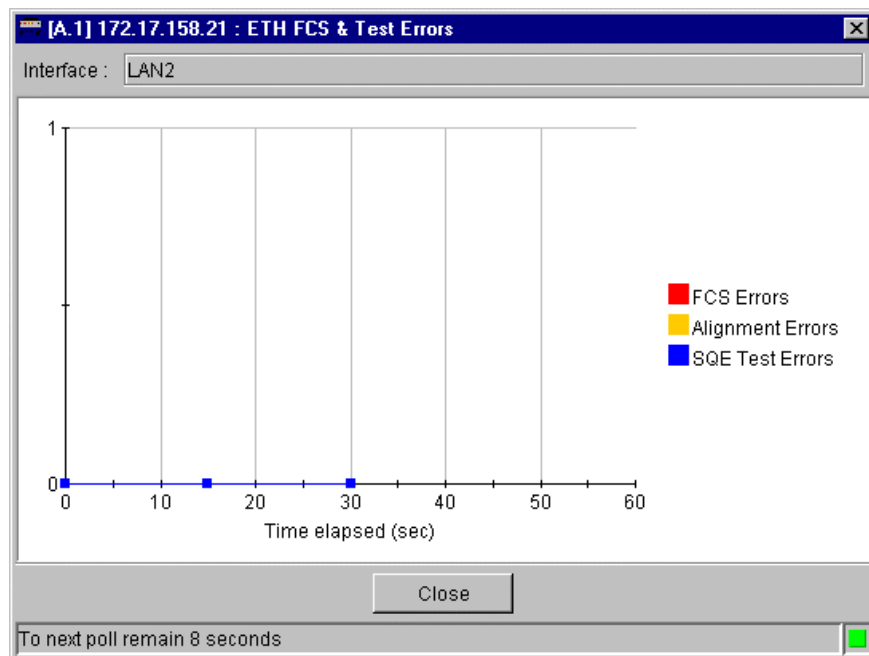


Figure 5-24. ETH FCS & Test Errors

➤ To display the statistics for the Collisions group in a graph:

- Select **Statistics >Graph > Collisions...**

The LAN Collisions dialog box appears (*Figure 5-25*).

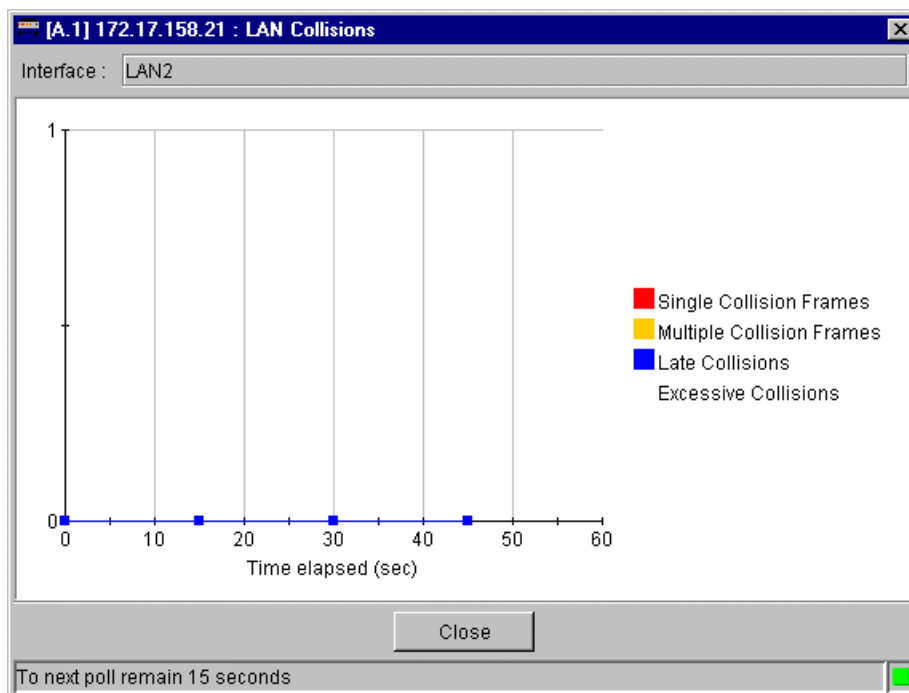


Figure 5-25. LAN Collisions

# Chapter 6

## Configuring FCD-IP for a Typical Application

This chapter provides detailed instructions for configuring a typical FCD-IP application. This application involves configuring:

- WAN Interface
- E1 Interface
- LAN Interface.

Each section shows the appropriate interface connections for those applications on the FCD-IP rear panel.

---

### 6.1 Overview

#### Application

The section provides detailed instructions for configuring FCD-IP unit with a sub-E1 and 10/100BaseT LAN interface, operating in the IP router mode (see [Figure 6-1](#)).

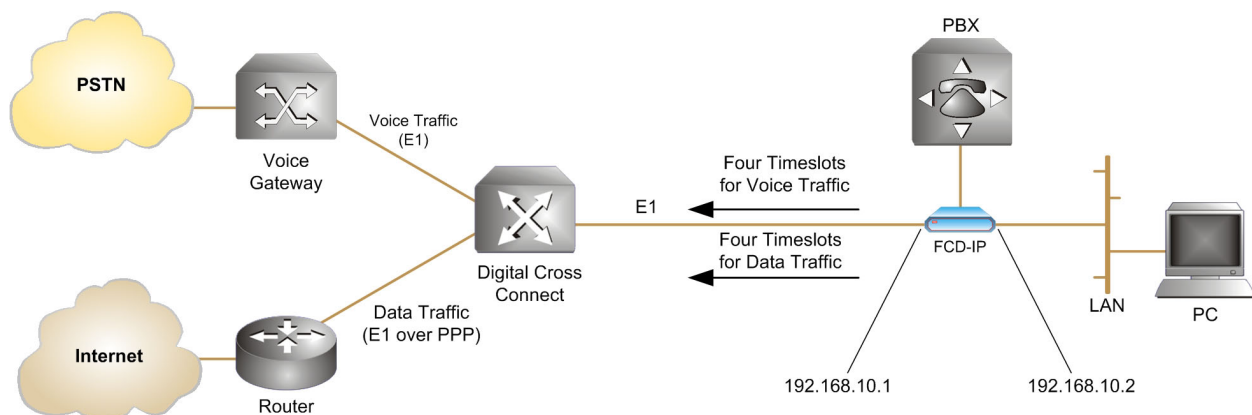


Figure 6-1. FCD-IP Providing Access to the Internet and to the PSTN

Table 6-1. Configuration Summary

WAN Parameters	E1 Parameters	LAN Host Parameters
<ul style="list-style-type: none"> <li>Link mode: Synchronous</li> <li>Routing: IP router</li> <li>Protocol: PPP</li> <li>WAN IP address: 192.168.10.1</li> <li>WAN IP mask: 255.255.255.252</li> </ul>	<ul style="list-style-type: none"> <li>Master clock: Link 1</li> <li>Multiplier: 64 kbps</li> <li>Timeslots 1–4: FIX SUB Voice</li> <li>Timeslots 5–8: DATA LINK1</li> </ul>	<ul style="list-style-type: none"> <li>LAN Status: Enable</li> <li>Host IP address: 192.168.10.2</li> <li>Host IP mask: 255.255.255.000</li> <li>Default gateway setting by: Interface</li> <li>Default gateway interface: LINK 1</li> </ul>


## 6.2 Configuring WAN Parameters

Configuring WAN parameters includes the following:

- Configuring the WAN Interface
- Configuring the WAN IP Address.

### Configuring the WAN Interface

► To configure the WAN interface:

- Select **Link1**.
- Switch to Edit View: Click the **Edit View** button on the toolbar .
- Select **Configuration > Interface Info...**

The Interface Information dialog box appears. There are two tabs: Info and Link Data.

- Click the **Link Data** tab.

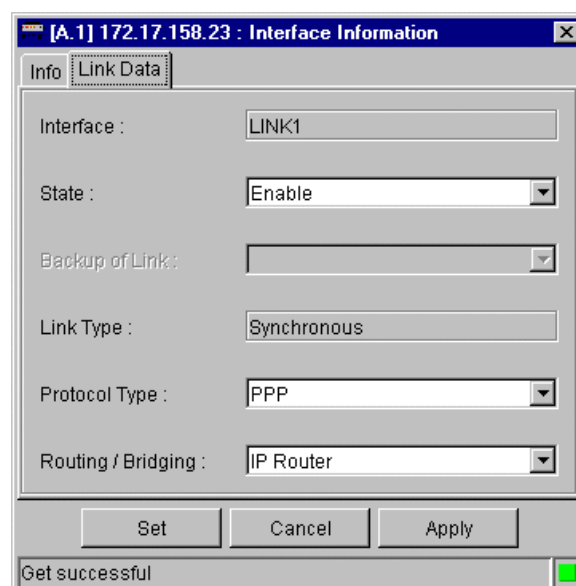



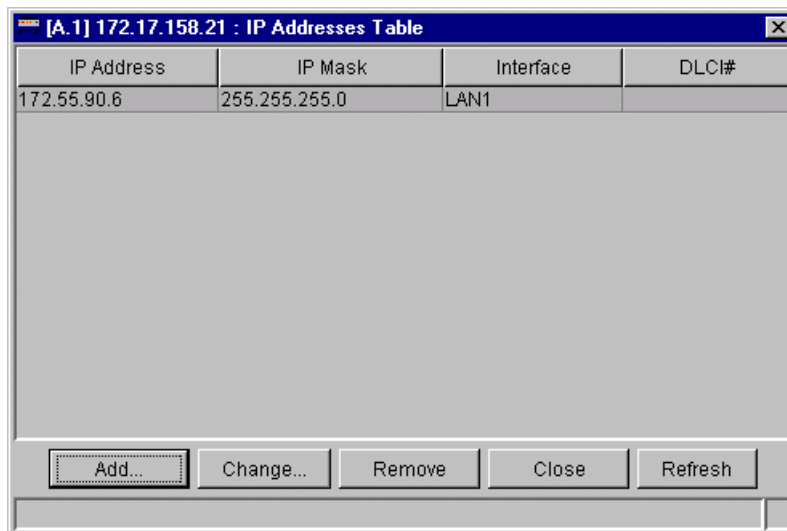
Figure 6-2. WAN Interface Information Link Data Tab

5. From the State drop-down list, select **Enable**.
6. In the Link Type field, type **Synchronous**.
7. From the Protocol drop-down list, select **PPP**.
8. From the Routing/Bridging drop-down list, select **IP Router**.
9. Click **<Set>**.

## Configuring the WAN IP Address

➤ **To configure the WAN IP address:**

1. Switch to Agent View: Click the **Agent View** button on the toolbar .
2. Select **Configuration > Network Parameters > IP Address....**  
The IP Address Table appears (*Figure 6-3*).

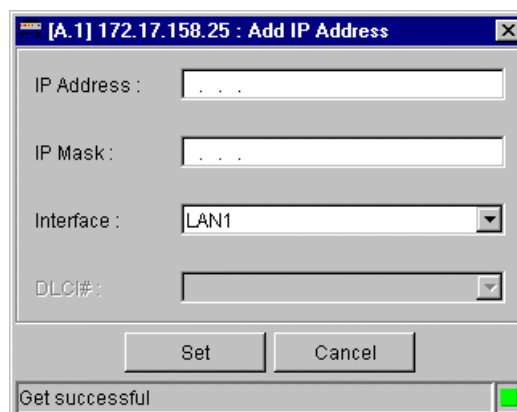


The screenshot shows a window titled "[A.1] 172.17.158.21 : IP Addresses Table". It contains a table with four columns: IP Address, IP Mask, Interface, and DLCI#. The first row of data shows 172.55.90.6, 255.255.255.0, LAN1, and an empty DLCI# field. Below the table are five buttons: Add..., Change..., Remove, Close, and Refresh.

IP Address	IP Mask	Interface	DLCI#
172.55.90.6	255.255.255.0	LAN1	

Figure 6-3. IP Addresses Table

3. In the IP Address Table (*Figure 6-3*), click **<Add...>**.  
The Add IP Address dialog box appears (*Figure 6-4*).



The screenshot shows a dialog box titled "[A.1] 172.17.158.25 : Add IP Address". It has four input fields: IP Address (with three dots), IP Mask (with three dots), Interface (a dropdown menu showing LAN1), and DLCI# (a dropdown menu). At the bottom are Set and Cancel buttons. A status bar at the very bottom says "Get successful" with a green indicator.

Figure 6-4. Add IP Address

4. In the IP Address field, type **192.168.10.1**.
5. In the IP Mask field, type **255.255.255.252**.
6. In the Interface drop-down list, select **LINK1**.
7. Click **<Set>**.


## 6.3 Configuring the E1 Interface

Configuring the E1 interface includes the following:

- Configuring E1 Parameters
- Mapping E1 Timeslots.

### Configuring E1 Parameters

► **To configure E1 parameters:**

1. Select **LINK1**.
2. Switch to Edit View: Click the Edit View button on the toolbar .
3. Select **Configuration > Physical Parameters > General....**

The E1 Link Parameters dialog box appears.

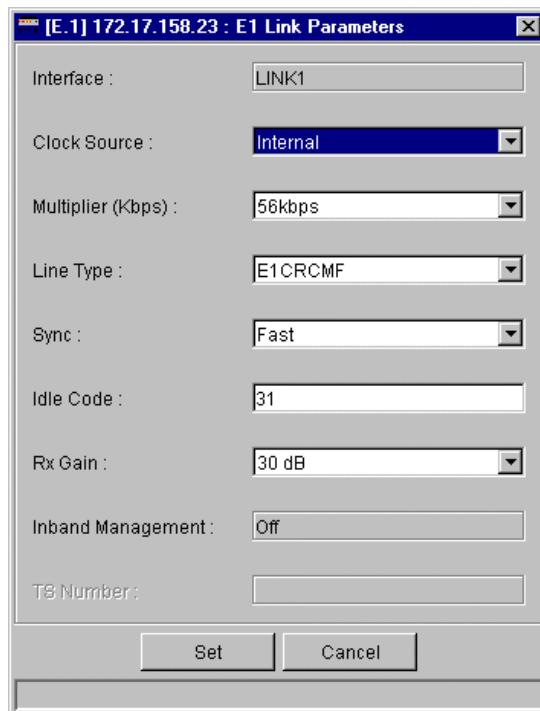




Figure 6-5. The E1 Link Parameters

4. From the Clock Source drop-down list, select **Link 1**.
5. From the Multiplier drop-down list, select **64 kbps**.
6. Click **<Set>**.

## Mapping E1Timeslots

### ► To configure TS parameters:

1. Select **LINK1**.
2. Switch to Edit View: Click the Edit View button on the toolbar .
3. Select **Configuration > Physical Parameters > TS Assign...**  
or  
click the shortcut key on the toolbar .

The TS Assignment dialog box appears (Figure 6-6).

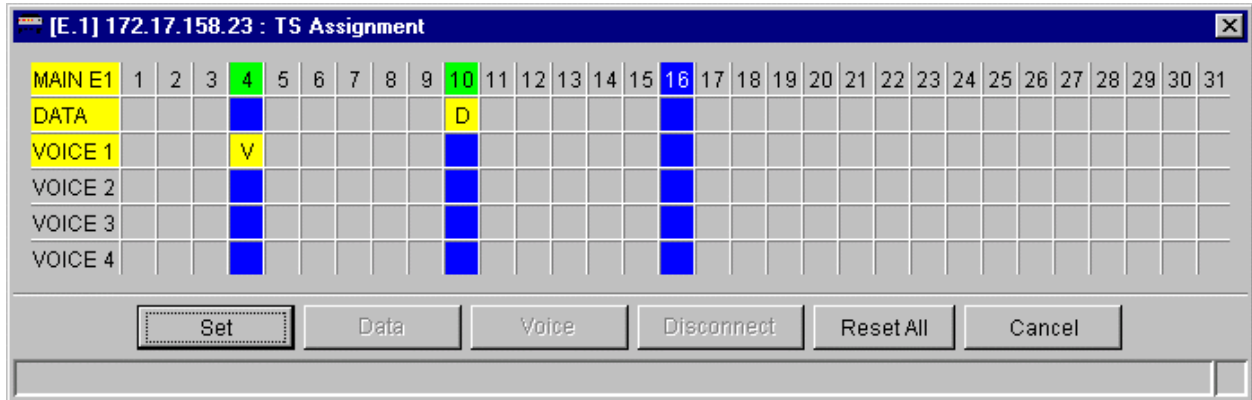


Figure 6-6. TS Assignment

4. Configure the first eight timeslots as follows:
  - TS1, TS2, TS3 and TS4 – FIX SUB Voice
  - TS5, TS6, TS7 and TS8 – DATA LINK 1.
5. Click **<Set>**.


## 6.4 Configuring the LAN Interface

Configuring the LAN interface includes the following:

- Enabling the LAN
- Configuring the LAN IP Address
- Configuring Default Gateway Settings

### Enabling the LAN

#### ► To configure LAN Host Parameters:

1. Select the Ethernet LAN.
2. Switch to Edit View: Click the Edit View button on the toolbar .
3. Select **Configuration > Interface Info...**

The Interface Information dialog box appears.

Interface : LAN1

Description : Fast ETH with internal switch

Type : Fast ETH

Oper. Status : up

MTU : 1500

Rate (Mbps) : 100

Active Address

Burn In MAC : 00 20 D2 18 6F 58

Locally Administered : 40 20 D2 18 6F 58

Lan State : Enable

Set Cancel Refresh


Get successful

Figure 6-7. Interface Information - Ethernet LAN

4. From the LAN State drop-down list, select **Enable**.
5. Click **<Set>**.

## Configuring the LAN IP Address

### ► To configure the LAN IP Address:

1. Switch to Agent View: Click the **Agent View** button on the toolbar .
2. Select **Configuration > Network Parameters > IP Address....**

The IP Addresses Table appears ([Figure 6-3](#)).

IP Address	IP Mask	Interface	DLCI#
172.55.90.6	255.255.255.0	LAN1	

Add... Change... Remove Close Refresh

Figure 6-8. IP Addresses Table



- In the IP Addresses Table, click **<Add...>**.  
The Add IP Address dialog box appears.

Figure 6-9. Add IP Address

- In the IP Address field, type **192.168.10.2**.
- In the IP Mask field, type **255.255.255.000**.
- In the Interface drop-down list, select **LAN1**.
- Click **<Add>**.

## Configuring Default Gateway Settings

### ► To configure default gateway settings:

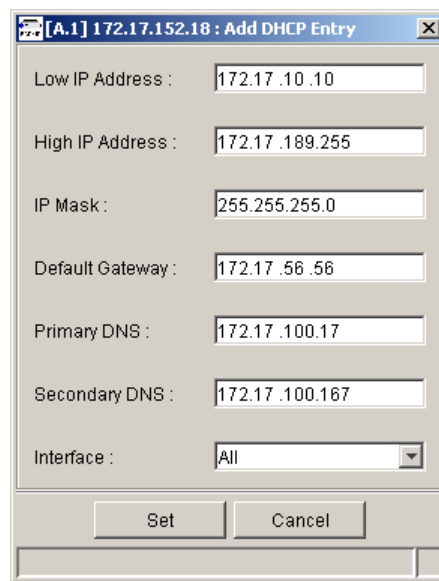
- Select **Configuration > System Commands > DHCP...**

The DHCP table appears (Figure 6-10).

Low IP Address	High IP Address	IP Mask	Default Gateway	Primary DNS	Secondary DNS	Interface
194.24.1.6	255.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	All

Figure 6-10. Dynamic Host Configuration Protocol Table

- Click **<Add...>**.  
The Add DHCP Entry table appears.



Low IP Address : 172.17.10.10

High IP Address : 172.17.189.255

IP Mask : 255.255.255.0

Default Gateway : 172.17.56.56

Primary DNS : 172.17.100.17

Secondary DNS : 172.17.100.167

Interface : All

Set Cancel

Figure 6-11. Add DHCP Entry Table

3. In the Default Gateway drop-down list, select **Interface**.
4. In the Interface drop-down list, select **Link1**.
5. Click **<Set>**.

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